SmartMesh Series of Wireless Broadband MESH

SmartMesh series wireless broadband AD hoc network radio, using the latest generation of software radio (SDR) platform, with long distance, high speed, fast access to the network, fast route switching, flexible networking, 2×2MIMO, rich frequency band (frequency can be customized), rich interface, small size, light weight and other advantages. The radio has high integration, low power consumption, compact design, module/airborne/handheld/vehicle/load/outdoor base station and other forms, supporting 0.5Watts×2/1Watts×2/2Watts×2/10Watts×2/20Watts×2 power output.

SmartMesh has a high security level and supports multiple encryption modes. Powerful LPI/LPD performance, support frequency hopping, intelligent frequency selection; Support a variety of working modes, point-to-point, point-to-multipoint, multipoint to multipoint; Flexible networking, star network, chain network, mesh network and hybrid network topology. SmartMesh radio can be widely used in the networking and control of intelligent terminals such as drones, unmanned vehicles, unmanned ships, robots, and can also be applied to individual soldier networking, rescue and disaster relief, emergency communication, intelligent power, forest fire prevention, mine operation, anti-terrorism special service, civil air defense and other industries.

Handheld

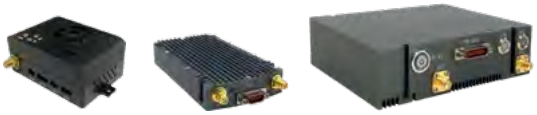
19x6. 8x3. 8cm/769g

(2Watts×2)

Backpack/Vehicle

22.9×18.9×6.2cm/3.86kg,18.3×15.4×6.3cm/1.56kg

(10Watts×2/20Watts×2)



(10~30KM) (30~50/50~150KM) (150~300/250~500KM)

Airborne

7. 5x5. 1x3. 2cm/116g, 11. 7x6. 2x1. 9cm/149g, 12. 7x11. 0x3. 3cm/635g

(1Watts×2/2Watts×2, 10Watts×2/20Watts×2)

Module/Miniature Stamp

5.1×3.2×1.2cm/25g,8.7×5.4×1.0cm/40g,9.7×5.4×1.0cm/60g

(0. 5Watts×2, 1Watts×2, 2Watts×2)

Main features of SmartMesh Wireless Broadband MESH:

RF performance:

- Long distance, high throughput,Low delay
- Anti jamming COFDM / broadband carrier frequency hopping can improve link quality in complex RF environment
- Excellent multipath and NLOS performance
- Adaptive radio modulation from QPSK to 64QAM is continuously optimized per packet to optimize link performance in dynamic environments
- Software defines channel sizes for efficient reuse of spectrum
- The software defines the operating frequency of the global application
- Convolution coding, forward error correction (FEC), ACK retransmission, maximum ratio merge, spatial multiplexing, and space-time block coding are used for robust data transmission over noise spectrum
- Time Division Duplex (TDD) for Bidirectional Transmission

Network performance:

- Self-organizing, self-healing mobile Mesh networks, multi-hop routing, dynamic topology
- Ultra-Reliable Low Delay Channel for Command and Control (URLLC)
- Optimizing video streaming media channels on the same wireless link
- End-to-end IP architecture for unicast and multicast traffic
- Data transmitted over the air can be encrypted with up to 256-bit AES
- ake advantage of the most advanced and scalable SDR Communication platform
- Embedded network management APIs

Other:

- Small Size, Light Weight, and Low Power-Low Cost(SWAP-C) for Mobile Device Applications
- Ethernet and UART interfaces can be easily integrated into different system architectures
- Rugged earthquake-resistant construction, industrial temperature range

SmartMesh Series of Wireless Broadband MESH Specifications

General

Waveform	Mobile Network MIMO (MN-MIMO)
MIMO Technology	Space-time coding、Space Diversity、TX /RX beamforming、Spatial multiplexing
Receive Sensitivity	-103dBm@5MHz BW
Channel Bandwidth	1.25/2.5/5/10MHz optional
Data Rate	1-70Mbps(10MHz BW) Adaptive,QoS
Modulation Mode	TD-COFDM,BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM Adaptive(Fixed setting optional)
RF Output Power (Support TPC, transmisson power control)	0.5Watts x2/1Watts x2 (Module) 1Watts x2/2Watts x2 (Module/Airborne/Handheld) 10Watts x2 (Airborne/Backpack/Vehicle Rack-mounted/Outdoor/Dual-band Radio) 20Watts x2 (Airborne/Backpack/Vehicle Rack-mounted/Outdoor Radio)
Single Hop Communication Distance	100-300 KM (visible), 1-30 KM (urban area)
Mode	Distributed centerless Point-to-point/Point-to-multipoint/Multipoint-to-multipoint, Layer 2 or 3 of Dynamic routing、Multi-hop relay, Star/Line/Network/Hybrid
Single Hop Delay	Average 7mS (20MHz BW)
Encryption	DES, AES128/256, SNOW3G/ZUC optional, Chip/TF card encryption customized or external encryption machine
Anti-jamming Mode	Manual spectrum scanning channel selection, Full band enhanced intelligent frequency selectting(spectrum awareness)/Full band adaptive frequency hopping/ Roaming mode optional
Local/Remote Management	Operating frequency, channel bandwidth, network ID, transmit power and other parameter settings, spectrum scanning, real-time display and statistical records of network topology, link field strength signal-to-noise ratio, upload and download traffic,node distance, GPS/Beidou electronic map, temperature/voltage/jamming Monitoring, software upgrade. Remote silence and wake-up optional
Others	The startup time is less than 28 seconds, and the network access/update/switchover time is less than 1 second. There is no limit on the user capacity of a single system (256 nodes or more) and the number of hops in Mesh networks (Data 15+ hops, voice 10+ hops, video 8+ hops). The total bandwidth loss of multiple hops is less than 70%. Automatic carrier tracking, adapted to a Doppler frequency deviation of ± 6kHz frequency offset, supports mobile communication at speeds above 7200 kilometers per hour (6 Mach, 2000 meters per second).

Bands(70M-6GHz. 2T2R at single band, or 1T2R at dual band selectable/smart change*)

BAND	Frequency range (MHz)	BAND	Frequency range (GHz)
UHF	430-550/570-700/800-950, 225-400/320-470*	S Band	1.6-1.8/1.8-2.0/2.0-2.2/2.2-2.5/ 2.5-2.7/2.7-2.9,1.6-2.3/1.9-2.7*
L Band	1000-1200/1300-1500, 1200-1700*	C Band	4.4-5.0/5.25-5.85, 4.2-5.2/5.5-6.0*
MIIT	336-344/512-582/566-626/606-678/1420-1520/1430-1444		

Environmental

Operation Temperature	-40℃ ~+80℃
Protection Level	IP66, IP67/IP68 Customized

Mechanical

Size/Weight	19x6.8x3.8cm/769g (with 11.1V/76Wh battery Handheld Radio) 22.9x18.9x6.2cm/3.86kg (with 22.2V/114Wh battery Backpack Radio) 18.3x15.4x6.3cm/1.56kg (10Watts×2/20Watts×2 Vehicle Radio) 11.7x6.2x1.9cm/149g (1Watts×2/2Watts×2 Airborne Radio-Lron Gray) 12.7x11.0x3.3cm/635g (10Watts×2/20Watts×2 Airborne Radio-Lron Gray) 8.7×5.4×1.0cm/40g (1Watts×2 Module) 9.7×5.4×1.0cm/60g (2Watts×2 Module) 5.1×3.2×1.3cm/25g (0.5Watts×2 Miniature Stamp)
Installation/Color	4 Mounting Holes/Black、Lron Gray、Army Green Optional

Power

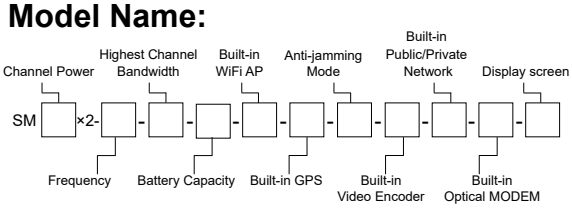
Supply Voltage	7-39VDC (0.5Watts×2/1Watts×2 Module) 9-36VDC (1Watts×2/2Watts×2 Module/Airborne/Handheld) 14.8-36VDC (10Watts×2 Airborne/Backpack/Vehicle Rack-mounted/Outdoor/Dual-band Radio) 18-36VDC (20Watts×2 Airborne/Backpack/Vehicle Rack-mounted/Outdoor Radio)
Power consumption	Operation 0.5-1A/Standby 0.4-0.6A@12V (0.5Watts×2/1Watts×2 Module) Operation 1-2A/Standby 0.5-0.7A@12V (1Watts×2/2Watts×2 Handheld/Airborne/ Module) Operation 3-6A/Standby 0.7-0.9A@16.8V (10Watts×2 Airborne/Backpack/Vehicle Rack-mounted/Outdoor/Dual-band Radio) Operation 6-7A/Standby 0.7-0.9A@20V (20Watts×2 Airborne/Backpack/Vehicle Rack-mounted/Outdoor Radio)
Power Selection	Power Supply by Twist-Lock Battery or Main Cable
Batteries	8-10/6-8 hours for 114/76Wh (Handheld Radio) 10-12/6-8 hours for 427/214Wh (Backpack Radio) polymer lithium battery

Interface

Basic interface	2xTNC RF, 1-3xRJ45 Ethernet 100/1000BaseT, WiFi AP,GPS/BD RS232/TTL(UART), Sbus/Bluetooth, 1.2-230.4Kbps, DC Input
Push to talk/Auxiliary interface	MIC, SP, PTT, GND, RS485/422, USB2.0 OTG
Network Extension Optional	Public Network Routing/4G LTE, WB-NB integration, Fiber, Satellite
Video Extension Optional	Low Delay HDMI/SDI/CVBS, 4K/2K/1080P/720P/D1
Link Status Indicator	Steady red - The network is not connected Blinking red - Starting/not connected to the network Steady green - The network is connected Blinking green - Voice PTT is down
RSSI Link Indicator	Steady green - The link quality is excellent Steady Blue - The link quality is good Steady yellow - The link quality is medium Steady purple - The link quality is slightly worse Steady red - The link quality is poor or link is down
Management Interface/Control Interface	Web-based network management/GUI, API for secondary development interface/ SNMP

Product Model Approval Certificate of Radio Administration of The Ministry of Industry and Information Technology of China: 2018FP5238、2018FP6081、2021FP0114、2021DP10060、2022FP15779

Model Name:



Channel Power (W)	Frequency (MHz)	Highest Channel Bandwidth(MHz)	Battery Capacity (Wh)	Built-in WiFi AP	Built-in GPS	Anti-jamming Mode	Built-in Video Encoder	Built-in Public/Private Network	Built-in Optical MODEM	Display Screen
0.5,1	600,U	10	0(N)	0(N)	0(N)	0(Single Frequency)	0(N)	0(N)	0(N)	0(N)
2	1400,L		76,114	1(Y)	1(Y)	1(Intelligent Channel Selection)	HDMI	4G/5G	1(Y)	2(2")
10	2300,S		214,427			2(Autonomous Frequency Hopping)	SDI/AV	4G LTE CPE		3(3.2")
20	4500,C									4(4")

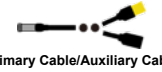
SM2×2-1400-40-6.8-1-1-0-HDMI-4G/5G-0-0，Express：2W×2, L Band, Maximum Channel Bandwidth 10MHz, With 76Wh Battery, With WiFi AP, With Positioning Module, Single Frequency, Built-in HDMI Coding, Built-in 4G/5G Public Network Module Handheld Radio.

SM10×2-600-20-28.8-1-1-1-SDI-4G LTE-0-0，Express：10W×2, UHF, Maximum Channel Bandwidth 10MHz, With 427Wh Battery, With WiFi AP, With Positioning Module, With Intelligent Channel Selection, Built-in SDI Coding, Built-in 4G LTE Private Network Module Backpack Radio.

Accessories:


Digital voice


Battery charger


Primary Cable/Auxiliary Cable
Connecting line


Backpack


Antenna

Options:


Command Dispatch Desk


Smart Helmet


Camera


Deployment Camera


Monitor Station

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