EMBEDDED DATA RADIO

WaSP

WaSP is a compact, high-performance radio modem, tailored for wireless surveillance applications. Designed for fast, secure and reliable data transfer in mission-critical operations. Its lightweight, embedded form makes it ideal for UGVs (Unmanned Ground Vehicles) and UAVs (Unmanned Aerial Vehicles), where every gram and watt matters.

FEATURES

- 200 – 470 MHz and 700 – 960 MHz
- RF Power 35 dBm / 3 W
- Mesh network
- Half or Full duplex
- Asymmetric uplink / downlink
- Interference awareness frequency hopping

PERFORMANCE

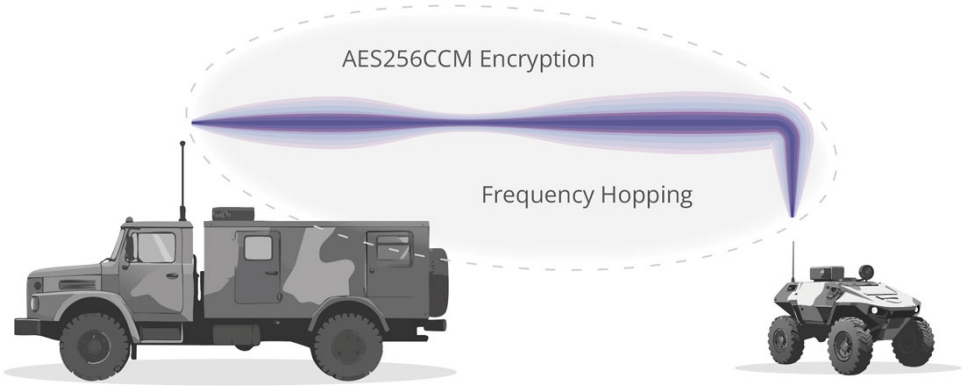
- 10.4 kb/s – 4.1 Mb/s
- 25 kHz – 10 MHz channels
- Power efficient CPFSK
- Static and Dynamic routing
- Unlimited coverage without Base stations

RELIABILITY

- Defence-grade design
- -40 to +60 °C
- Each unit tested in climatic chamber
- MTBF > 100 years
- Designed & Manufactured in Czechia, EU

SECURITY

- AES256, Firewall
- IPsec, OpenVPN
- RADIUS, VLAN
- Digitally signed FW



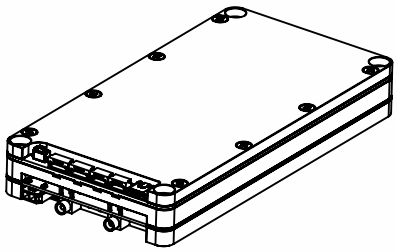
RACOM

www.racom.eu

TECHNICAL PARAMETERS

Radio parameters

Frequency bands	200 – 470 and 700 – 960 MHz
Channel spacing	25; 50; 100; 200; 400; 625 kHz and 1.25; 2.5; 5; 10 MHz
Frequency stability	+/- 0.5 ppm
Modulations	4CPFSK, 2CPFSK
FEC (Forward Error Correction)	3/4; Off
Gross data rate	up to 4.1 Mb/s
RF Output power	20-35 dBm PEP (0.1-3 W RMS), 1 dB step programmable
Duty cycle	Continuous
Rx to Tx Time	< 0.7 ms @ 25 kHz
Sensitivity	-110 dBm (2CPFSK; 200 kHz BER 10^{-2}; 3/4 FEC) - 95 dBm (2CPFSK; 10 MHz BER 10^{-2}; 3/4 FEC)

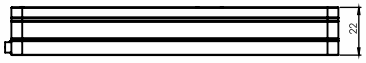


Electrical

Primary power	10 to 30 VDC, negative GND
Rx	9 W @ 24 V
Tx	10 – 27 W @ 24 V, 200 – 470 MHz; 13 – 35 W @ 24 V, 700 – 960 MHz
Sleep mode	0.01 W

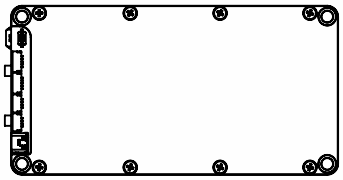
Interfaces

Ethernet	2x 10/100 Base-T Auto MDI/MDIX	2x JST-GH (4 pins)
Serial	1x RS232 600 b/s – 1 Mb/s	1x JST-GH (5 pins)
USB	USB 2.0	
Antenna	1x Rx/Tx Hi + 1x Rx/Tx Lo; SW configurable	2x MCX @ 50 ohms
Inputs/Outputs	HW alarm: 1x input, 1x output; 1x Sleep input	1x JST-GH (5 pins)



Indication LEDs

LED panel	4x tri-color status LEDs (SYS, Rx, Tx, COM)
ETH	2x Link and Activity LEDs

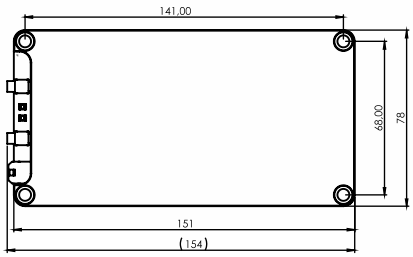


Environmental

MTBF (Mean Time Between Failure)	> 900 000 hours (> 100 years)
Operating temperature	- 40 to +60 °C (- 40 to +140 °F)
Operating humidity	5 to 95% non-condensing

Mechanical

Casing	Rugged aluminium
Dimensions	6.0 L x 3.0 W x 0.8 H in (154 x 78 x 22 mm)
Weight	0.65 lbs (295 g)



Radio channel

Radio protocols	Transparent; Flexible
Routing (Radio channel included)	Static, Dynamic
Frequency hopping	Interference awareness
Data integrity control	CRC 32
Repeaters	Store-and-forward; Every unit; Unlimited number
QoS	8 levels on all interfaces, Radio included

User protocols

Serial	DNP3, DF1, IEC101, Modbus RTU, PR2000, RDS, Siemens 3964(R), COMLI, SAIA S-bus, Mars-A, UNI, Async Link...
Ethernet	Modbus TCP, IEC104, DNP3 TCP, Comli TCP...
Serial to IP convertors	Modbus RTU / Modbus TCP, DNP3 / DNP3 TCP, Terminal server

Security

Management	HTTPS (Web Interface or Application Programming Interface)
Role-based access control (RBAC)	4 levels (Guest, Tech, SecTech, Admin)
Encryption	AES256 - CCM
VPN	IPsec, OpenVPN, GRE
VLAN	IEEE 802.1Q (tagging), Q-in-Q for Transparent mode
AAA protocol	RADIUS
Firewall	Layer 2 - MAC, Layer 3 - IP, Layer 4 - TCP/UDP
FW	Digitally signed

Diagnostics

Radio link testing	Ping with RSS, MSE (DQ)
Logs	Status, Event log
Statistics	Historical and differential statistics for all interfaces
Monitoring	Real time analysis of all interfaces
NTP	Client, Server
SNMP	SNMPv1, SNMPv2c, SNMPv3, SNMP Trap / Inform alarms generation as per settings

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