

Ethernet Radio Module Technical Specifications

Transmitter

Frequency Range:	902 to 928 MHz
Output Power:	5 mW to 1 Watt
Data Link Range:	60 miles, Clear Line of Sight
Modulation:	2 level GFSK
RF Data Rate:	115.2 kbps Standard Speed, 153.6 kbps High Speed
Occupied Bandwidth:	230.4 kHz
Hopping Patterns:	15 per band, 105 total, user selectable
Hopping Channels:	112
Frequency Zones:	16 zones, 7-8 channels per zone

Receiver

Sensitivity:	-108 dBm, at Standard Speed, 1x10 ⁻⁴ BER -104 dBm, at High Speed, 1x10 ⁻⁴ BER
IF Selectivity:	20 dB at fc ±230 kHz

Data Transmission

Error Detection:	32 bit CRC, retransmit on error
Data Security:	AES 128 bit encryption and FHSS Technology
Data Throughput:	80 kbps Standard Speed, 115.2 kbps High Speed
Serial Data Interface:	RS232/RS422/RS485 Programmable 2x 9-pin D-sub (DE-9) male connectors
Ethernet Data Interface:	802.3, TCP, UDP, DHCP, ICMP, ARP, Multicast, TFTP, DNP3 over TCP 1x RJ-45, 10/100 Base T, Auto Crossover

Power Requirements

Operating Voltage	+6 to +30 VDC			
Typical Current	Mode	+6 VDC	+12 VDC	+30 VDC
	Transmit	1.1 A	550 mA	220 mA
	Receive	252 mA	150 mA	63 mA
	Idle	140 mA	71 mA	32 mA

General Information

Operating Temperature:	-40° C to +75° C (-40° F to +167° F)
Dimensions:	7.0 L x 3.25 W x 1.25 H (in)
RF Connector:	SMA, female
Certifications:	FCC Part 15.247 / IC RSS-210 / UL Class 1, Division 2

Radio Network Specifications

- Maximum number of radios in a network:
 - One Gateway radio and up to 34 Endpoint radios, for a total of 35 radios
 - If a Repeater is required in the network topology, the maximum number of radios is 15, including Repeaters
- Maximum number of Repeaters between a Gateway and an Endpoint: 1
- Maximum distance between radios: 1 mile
- Required Noise Margin: The Signal must be at least 20 dB higher than the Noise (Delta)
- Each radio unit must have a unique static IP (internet protocol) address assigned to it.

Radio Installation Specifications

- Have a Radio Site Survey performed by a certified Baseline surveyor before ordering or installing radio equipment.
- Require installation contractors to demonstrate that the installation and radio network performance meets or exceeds all specifications and site survey results.

High Gain Antenna Installation Specifications

- Provide 10 feet of vertical separation from other antennas.
- Polarization matters. All antennas must be polarized the same.
- Install a lightning arrestor and ground appropriately following all manufacturer installation guidelines and precautions.
- Use LMR400 low loss cables or better.
- Weatherproof all antenna connections.
- Provide strain relief on all connections.
- Use tie wraps to secure cables.