



# RF412

## 922 MHz Spread-Spectrum Radio



### Overview

The RF412 is a high-speed 900 MHz serial radio designed for unlicensed operation in several countries, including Australia and New Zealand. The RF412 is a 915 to 928 MHz frequency-hopping spread-spectrum radio with a configurable transmit-power output of 5 to 250 mW and software-selectable channel masking for improved RF interference immunity. This power-sipping, yet speedy, radio provides a cost-effective way to network data loggers.

The RF412 is part of the RF407 series of radios that includes:

- ▶ **RF407:** North America (FCC & IC), 902 to 928 MHz
- ▶ **RF412:** Australia (ACMA RCM), 915 to 928 MHz
- ▶ **RF422:** Most of Europe and some of Asia (ETSI), 863 to 870 MHz
- ▶ **RF427:** Brazil (ANATEL), 905/920 MHz

**Note to RF411A users:** The RF411A is factory upgradeable to an RF412. Contact Campbell Scientific for a [Returned Material Authorization \(RMA\)](#).

### Benefits and Features

- ▶ Does not require individual operational license in Australia or New Zealand
- ▶ High-speed serial communication, optimized for PakBus networks
- ▶ Low power (< 2 mA idle) during periods of inactivity
- ▶ Supports point-to-point with RF retries and point-to-multipoint operations
- ▶ Remote diagnostics using PakBus node operations

### Specifications

Radio Type	Frequency Hopping Spread Spectrum (FHSS)
Frequency	915 to 928 MHz
Country Used In	Australia, New Zealand

Transmission Distance } *-Note- Transmission distance assumes line-of-sight and appropriate antenna. Line-of-sight obstructions, RF interference, and antenna type will affect transmission distance.*

	› Up to 1.61 km (1 mi) with omnidirectional antenna; up to 16.09 km (10 mi) with higher-gain directional antennas at ideal conditions
Power Output	5 to 250 mW (software-selectable)
Receiver Sensitivity	-101 dBm
Channel Capacity	Eight 25-channel hop sequences sharing 31 available channels
Data Rate	200 kbps
Link Throughput	105 kbps (maximum)
Antenna Connector	Reverse Polarity SMA (RPSMA) jack
LEDs	Red TX/PWR and green RX
RS-232 Baud Rate	1200 to 115200 bps
CS I/O Modes	SDC 7, 8, 10, 11, and ME master
Operating Temperature Range	-40° to +70°C
Power	9 to 16 Vdc
Power Connector	2.5 mm DC power jack
Average Current Drain	› Receive: 15 mA › Stand-by: < 0.5 mA (depending on power saving mode) › Transmit: < 80 mA (250 mW TX Power)

Communication Ports	› USB Type B jack › CS I/O 9-pin D male › RS-232 9-pin D female
Service Requirements	Shares frequency with other devices. Must not cause harmful interference to licensed radios. Requires line-of-sight.
Dimensions	11.1 x 6.9 x 2.7 cm (4.4 x 2.7 x 1.1 in.) Dimension are from the tip of the antenna connector to the other side of the case, and from the bottom of the case to the top of the DB9 connector jack screw. The width includes the thickness of the screw heads on the screws that hold the case together.
Weight	› 136 g (4.8 oz) without "Ships With" items › 283.5 g (10 oz) with "Ships With" items

### Certifications

Australia	ACMA RCM
United States (FCC Part 15.247)	MCQ-XB900HP
Industry Canada (IC)	1846A-XB900HP

For comprehensive details, visit: [www.campbellsci.com/rf412](http://www.campbellsci.com/rf412) 

