



RF451

900 MHz 1 W Spread-Spectrum Radio



Overview

The RF451 is a powerful 900 MHz point-to-multipoint serial radio that is well suited for wireless networking with PakBus data loggers that are located miles apart. The RF451 is a 902 to 928 MHz frequency-hopping spread-spectrum radio. The radio features high noise immunity, fast serial data transfer speeds, and the maximum transmit power allowed by the FCC in an effort to provide reliable, hassle-free operation.

Constructing a network using RF451 radios is a simple, easy-to-do configuration process. To construct a network, connect one radio to a PC and configure it as the master radio. Then connect a second radio to a data logger. The link can be treated as a high-speed, multi-drop serial connection.

Benefits and Features

- › Does not require individual operational license in several regions around the world
- › Long-distance, high-speed, serial communication with battery-operated stations
- › Each radio capable of performing master, remote, or repeater role
- › Remote diagnostics and setup possible with diagnostics cable and software
- › Compatible with existing RF450 and FreeWave FGR radio networks

Specifications

Radio Type	Frequency Hopping Spread Spectrum (FHSS)	Occupied Bandwidth	142 kHz (applicable to FCC ID KNYAMM0921TT)
Frequency Range	902 to 928 MHz	Hopping Patterns	15 per band, 105 total (user-selectable)
Power Output	10 to 1,000 mW (user-selectable)	Hopping Channels	50 to 111 (user-selectable) applicable to FCC ID KNYAMM0921TT
Modulation	2 level GFSK		
RF Data Rate	115.2 or 153.6 kbps (selectable speeds)		

Frequency Zones	16
Receiver Sensitivity	<ul style="list-style-type: none"> › -108 dBm at 115.2 kbps (for 10⁻⁴ BER) › -103 dBm at 153.6 kbps (for 10⁻⁴ BER)
IF Selectivity	40 dB (at fc ± 230 kHz)
Receiver Selectivity	50 dB (at 896 MHz, 935 MHz)
Error Detection	32-bit CRC (retransmit on error)
Data Encryption	proprietary spread-spectrum technology
Link Throughput	115.2 kbps (maximum)
RF Connector	Reverse Polarity SMA (RPSMA) jack (external antenna required)
CS I/O	DB9 M, SDC 7/8/10/11 device
RS-232	DB9 F, DCE
Operating Temperature Range	-40° to +85°C
Relative Humidity	0 to 95% RH (non-condensing)

Compliance Information	<ul style="list-style-type: none"> › KNYAMM0921TT (FCC ID) › 2329B-AMM0921TT (Industry Canada (IC))
Average Current Drain (@ 12 Vdc)	<ul style="list-style-type: none"> › 650 mA (transmit) › 40 mA (receive) › 15 mA (idle) › 6 mA (sleep)
Communication Ports	<ul style="list-style-type: none"> › RS-232 9 pin D female › CS I/O 9 pin D male › USB Type B jack
Dimensions	13.61 x 2.74 x 7.01 cm (5.36 x 1.08 x 2.76 in.)
Weight	0.18 kg (0.4 lb)
Power	
Input Voltage	7 to 28 Vdc
Powered Over	CS I/O or barrel plug
Connector	Barrel plug, center positive 12 V (used to connect the 14291 Field Power Cable or 15966 ac adapter)

For comprehensive details, visit: www.campbellsci.com/rf451 



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