CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

# RF432

## 2.4 GHz Spread-Spectrum Radio


# With USB and RS-232

## Overview

The RF432 spread-spectrum radio includes a USB port to make it easier to connect to newer computers that do not have RS-232 ports. This 50 mW spread-spectrum radio/modem operates in the 2.450 to 2.460 GHz frequency range, which is used worldwide. The RF432 can transmit data to another RF432 radio, an RF416 radio, or a CR216(X) datalogger.

The RF432 supports point-to-point and point-to-multipoint communications. Although it typically serves as a base station modem/radio, the RF432 can connect to the datalogger RS-232 port to serve as a field modem (requires a null modem cable and a field power cable).

NOTE: Due to legal changes in the EU, we are not allowed to sell this product after January 1, 2015 unless we receive a written declaration that the customer wants to use it outside Europe or as a spare part in an existing network.

## Benefits and Features

- USB port for connecting to a computer; RS-232 port for connecting to a data logger
- Rugged, low-cost transceivers
- Can be used in the field as a transceiver or in the office as the base station
- Transmits up to one mile with omnidirectional antenna; up to 10 miles with higher gain directional antennas at ideal conditions
- Settings stored in non-volatile memory
- Designed for use in PakBus networks
- Frequency-hops over 25 channels avoids interference from other spread spectrum radios
- Optional extended temperature testing
- Faster communication due to elimination of some small "link state packets"
- Ability to have stand-alone RF router/repeaters (up to 8 repeaters)
- Greater immunity to interference and RF collisions by using RF retries
- Reduced power consumption by the data logger, as the radios perform "packet address filtering"
- Built-in setup menus allow access to advanced functionality

## Technical Description

The RF432 reduces susceptibility to RF interference from other spread spectrum devices by providing user-selectable frequency hopping patterns. Spread spectrum radios spread the normally narrowband information signal over a relatively wide band of frequencies. This process allows communications to be more immune to noise and

interference from RF sources such as pagers and cellular phones.

### RF432 and RF416 Differences

The RF432 radio is functionally the same as the RF416. The difference between the two is that the RF432 has USB and RS-232 ports, while the RF416 has RS-232 and CS I/O ports.

## Specifications

| | |
|---|---|
| Operating Frequency | 2.450 to 2.482 GHz |
| Radio Type | Frequency Hopping Spread Spectrum (FHSS) Transceiver |
| USB Baud Rate | 38.4 k, 19.2 k, 9600, 4800, or 1200 bps<br><br>(If an RF432 radio has an operating system prior to OS2, its USB port will only communicate at 38.4 kbps. Therefore, the operating system of an RF432 radio may need to be updated to a newer version if the network will contain data loggers that do not support 38.4 kbps. For example, CR200(X), CR510, CR10X.) |
| RS-232 Baud Rate | 38.4k, 19.2k, 9600, 4800, or 1200 bps |
| Channel Capacity | 65,000 Network Identifiers share 25 hop channels. |
| Frequency Hopping Patterns | 6 different selectable patterns |
| Receiver Sensitivity | -104 dBm at $10^{-4}$ bit error rate (Campbell Scientific protocols will issue retries wherever a bit error occurs.) |
| Interference Rejection | 70 dB (at pager and cellular phone frequencies) |
| Transmitter Power Output | 50 mW (nominal) |
| Antenna Connector | Reverse polarity SMA |
| FCC ID | OUR-24XSTREAM |
| Power | 9 to 16 Vdc |
| Operating Temperature Range | -25° to +50°C |
| LEDs | Power on, TX, RX, diagnostics |
| RS-232 Connector | 9-pin "D" Female (4 wire: Tx, Rx, CTS, GND) |
| Power Connector | Barrel plug, center positive 12 V (used to connect the 14291 Field Power Cable) |
| Dimensions | 11.4 x 7.0 x 2.9 cm (4.9 x 2.8 x 1.2 in.) |
| Weight | 227 g (8 oz) |

### Average Current Drain

| | |
|---|---|
| Standby | < 1 mA (power-saving options used) |
| Receiving | 40 mA |
| Transmitting | 78 mA |

For comprehensive details, visit: www.campbellsci.eu/rf432

CAMPBELL SCIENTIFIC
80 Hathern Road, Shepshed, LE12 9GX UK | +(0)1509 828888 | sale@campbellsci.co.uk | www.campbellsci.eu
UK | AUSTRALIA | BRAZIL | CANADA | CHINA | COSTA RICA | FRANCE | GERMANY | THAILAND | SOUTH AFRICA | SPAIN | USA