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WHEN MEASUREMENTS MATTER

RF422

868 MHz SRD860 Radio

Overview

The RF422 is an 868 MHz SRD860 radio designed to provide license-free operation for wireless serial communications in Europe. The RF422 transmits data at 10 kbps with a maximum power of 25 mW, and it employs listen-before-talk (LBT) and adaptive-frequency-agility (AFA) to provide a robust link of up to 5 km (line-of-sight). The RF422 supports point-to-point and point-to-multipoint data logger communications and PakBus repeater operation.

The RF422 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

Benefits and Features

- Does not require individual operational license in Europe
- Robust 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
- Operational power can be supplied over USB when attached to PC

Detailed Description

System Components

An RF422 radio needs to be at both the base station and field site. Each radio requires an antenna that does not exceed 2.1 dBi in gain over the 863 to 870 MHz frequency range, such as the 28767 whip antenna offered by Campbell Scientific.The RF422 has a reverse polarity SMA (RPSMA) connector for attaching the antenna or antenna cable.

Powering the Radio

At the base station, the radio typically uses ac power that is either supplied by the 15966 wall charger or through the PC via the USB port and cable. At the field site, the radio is typically powered by the data logger through the CS I/O port. The 14291 Field Cable can also be used to connect the radio to an appropriate 12 Vdc power supply. This field cable is required

when the radio is connected to the data logger's RS-232 port instead of the CS I/O port.

Specifications

Radio Type	SRD860, LBT+AFA
Restrictions	See REC70-03E, CEPT recommendation on the use of SRD.
Compliance	Listen before talk (LBT) and automatic frequency agility (AFA) to comply with ETSI duty cycle requirements. Radio communication effective duty cycle = (number of channels * 100) / 3600.
Channel Capacity	30 channels (default), software configurable for the purpose of meeting local regulations; 10 sequences for reducing interference through channel hop.
Frequency	863 to 870 MHz
Country Used In	EMEA (Europe, Middle East, and Africa)
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 5 km (3.11 mi) depending on antenna and line-of-sight
Power Output	2 to 25 mW (software-selectable; assuming 2 dBi antenna gain)
Maximum Nodes in Network	20
Receiver Sensitivity	-106 dBm
RF Data Rate	10 kbps
Link Throughput	8 kbps
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

Power	9 to 16 Vdc
Power Connector	2.5 mm dc power jack
Operating Temperature Range	-40° to +70°C
Certifications	❱ CE ❱ ETSI EN 300 220-2 V2.3.1
Average Current Drain	❱ < 25 mA (transmit at 25 mW TX Power) ❱ 15 mA (receive) ❱ < 0.5 mA (standby, depending on power-saving mode)
Communication Ports	❱ RS-232 9-pin D female ❱ CS I/O 9-pin D male ❱ USB Type B jack
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.) Dimensions 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

LBT+AFA Performance

Channel Spacing	100 kHz
Receiver Bandwidth	150 kHz
Modulation Bandwidth	< 300 kHz
LBT Threshold	< -88 dBm
TX on Time	< 1 s

For comprehensive details, visit: www.campbellsci.com/rf422