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WHEN MEASUREMENTS MATTER

RF500M
Radio Modem

Versatile Radio Modem

For networks with narrowband, UHF/VHF, licensed radios

Overview

The RF500M is a versatile radio modem for networks with UHF/VHF radios, typically serving as an interface between the data logger and radio. In addition to serving as a field modem connected to a data logger, the RF500M can also be used as a stand-alone repeater, or as a base-station modem connected to a computer. The RF500M is generally used with legacy or existing PakBus and mixed-array/dial-up networks. The RF500M works with our RF320-series radios, RF310-series radios, RF300-series radios, or any radio and modem combination that outputs a demodulated byte stream via RS-232.

For new installations, please consider one of our spread-spectrum radio solutions, or contact Campbell Scientific to discuss the use of other licensed radio options.

The RF500M is an appropriate choice for any ALERT(1) store-and-forward repeaters or base-station-decoder applications. For ALERT2 applications, refer to the ALERT200 ALERT2 Basic Remote Data Platform.

Benefits and Features

- Supports multiple radio configurations
- Uses software (DevConfig) instead of hardware modifications to upgrade the operating system (OS) and change RF ID or other settings
- Provides an RS-232 port (DTE) for modem configuration or attachment of an RS-232 radio
- Avoids all collisions within a network, thus increasing polling speeds and reducing overall current drain

Technical Description

The RF500M serves as a remote, repeater, and base station communication interface, generally for our licensed radio applications. It provides an interface between a datalogger or computer and a radio and can be a stand-alone repeater when onsite logging is not required. The RF500M is powered from the CS I/O port or from an external power connection. This modem is software configurable, and has been designed to interface with data telemetry radios such as our RF320-, RF310-, and RF300-series VHF/UHF radios.

-PB Operating System

The RF500M's -PB operating system was designed to quickly and efficiently move data through a network, making it a perfect choice for large networks or networks requiring fast collection intervals.

The time division polling (TD-RF) nature of the network provides collision free communications as the base modem controls when and how all data moves. An area wide poll releases station-originated data, with each station having its own dynamically allocated slot in which to transmit. The

data is collected and moved through the network back to the base. Two-way communications allow each station to be remotely administered (send program, change variables, etc.) from the base. Station-to-station communications are possible using PakBus; however communications occur on the poll and must be routed though the LoggerNet server.

-DA Operating System

The -DA operating system enables each station to be dialled from anywhere in the network, at any time. This ability supports masterless point-to-point communications.

-AL Operating System

The ALERT (Automated Local Evaluation in Real Time) operating system (OS) allows for transmission, repeating, and reception of binary ALERT formatted data. Additionally, it is a derivative of the -PB OS, and therefore supports both ALERT and TDRF communications (allowing true two-way communication with a station).

When used as an ALERT transmitter, the RF500M accepts an array of ALERT ID/Value pairs allowing multipacket transmissions. It can also turn any station into a store-and-forward ALERT repeater with programmable pass/reject lists. With the ability to transmit, receive, decode, and repeat ALERT data, the RF500M and datalogger allow for the creation of standard and advanced ALERT network components including:

- Transmitters
- Repeaters with sensor inputs
- Store-and-forward repeaters
- Multifrequency repeaters
- Data concentrators
- Robust high traffic base stations

Specifications

Voltage	7 to 20 Vdc (Can be provided by the CS I/O port.)
Active Current Drain	< 8 mA RMS (@ 12 Vdc)
Temperature Response	-25° to +50°C (standard)
Temperature Range	-55° to +85°C (extended)
Dimensions	16.0 x 9.5 x 2.2 cm (6.31 x 3.69 x 0.88 in.)
Weight	0.18 kg (0.4 lb)

Transceiver Audio Output (pin 5)

J1 Jumper Configuration	310 mV peak-to-peak (Campbell Scientific adjusts the audio input gain so that it is compatible with J1.)
J3 Jumper Configuration	670 mV peak-to-peak

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