

RAD-wBMS Operational Description

General Description

The RAD-wBMS is a state of the art battery cell measurement and network testing hardware using ADI's wBMS (Wireless Battery Management System) technology. The RAD-wBMS is an adapter designed to interface between ADI's electric vehicle wBMS and legacy test platforms in a variety of use cases. It contains ADI's wBMS radios and isoSPI™ interfaces (versions 1.1.1.5 and above) to control and configure the wireless and wired network components along with DW CAN-FD, 10/100Base-T and USB interfaces to connect to legacy test platforms.

This device contains two (2) identical transmitters. Both of these transmitters have the following parameters:

Bands of Operation	2.4GHz
RF Frequency Range	2405 – 2475 MHz
Lowest/Highest Channels	Low = 1 / High = 14
Channel Bandwidth	1.389 – 2.366 MHz
Number of Channels	15 Total / 12 Usable Channels (0, 7 and 15 off by default)
Data Rates	1Mbps and 2 Mbps
Transmit Output Power	+6 dBm max.
Nominal Supply	6 - 40Vdc
Operating Temp Range	-40°C to +85°C
Channel Spacing	5 MHz
Modulation	GFSK

Monitor Mode

The RAD-wBMS can be used as a receiver to receive data from up to 24 wBMS Node (12 cells per Node). The device can then send this data to a computer to view in Vehicle Spy. Additionally, the RAD-wBMS can be used to monitor traffic on two DW CAN / CAN FD channels. The RAD-wBMS's CoreMini can run scripts and playback from within the RAD-wBMS.

Playback Mode

The RAD-wBMS comes built in with CoreMini that can run scripts and playback traffic from within the RAD-wBMS.

The RAD-wBMS's storage uses EEPROM rather than an SD Card. EEPROM is a type of Read Only Memory (ROM) that can only be modified by a computer connected to the RAD-wBMS. The RAD-wBMS cannot change what is stored on its memory. Therefore, the RAD-wBMS does not support Standalone logging. Instead, the RAD-wBMS supports the use of adding, running, reading and reprogramming of a Script. A Script is loaded onto the RAD-wBMS through Vehicle Spy; however, the device does not need to be connected to Vehicle Spy 3 to run the Script.

Channel Selection

The RAD-wBMS operates in a dual network manager mode comprising of 2 identical radios. As such, when the radios are initially powered up, they communicate together via a dedicated onboard M2M (manager-to-manager) port and one radio is assigned as the primary while the other is assigned the secondary. The primary radio manages the network communication schedule so that channel selection for both radios is controlled. This ensures only 1 radio is capable of transmitting on a specific channel, preventing the possibility of both radios transmitting on the same channel simultaneously.