



radioscape

APPLICATION DATASHEET

RS500 Multi-Standard Digital Radio Module

For DRM, DAB, AM & FM



RS500L Module

Introduction

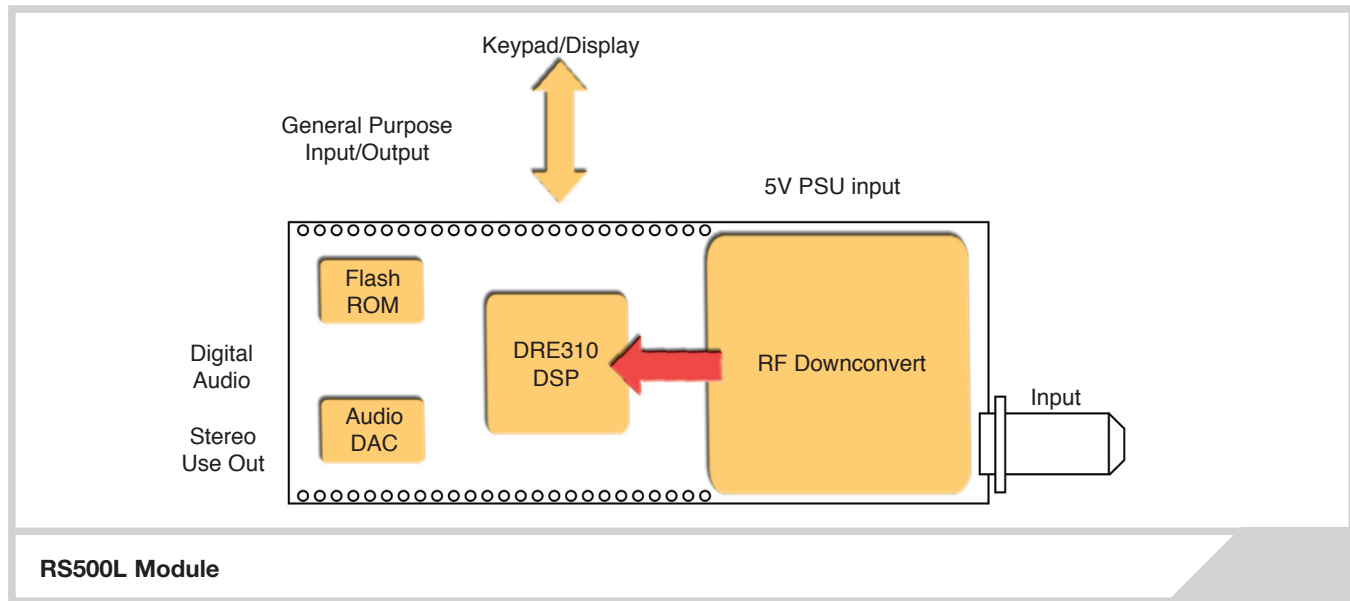
The RadioScape RS500 Module is the first, fully integrated, receiver module to incorporate DAB, DRM, analogue AM and FM services into a single module. It enables high performance, affordable receivers to be built and brought to market in the shortest possible timeframes.

RadioScape's Software Defined Digital Radio approach enables additional features to be uploaded as software to run on the DSP at the heart of the module providing the ability to update and customise for additional functions to give product differentiation. The RS500 features RadioScape's unique RadioS architecture. This architecture, first used on the RS300L module, abstracts the receiver standard and implements it as a platform. The other capabilities and features of the module, such as HMI and interfaces, sit on top of this as software modules, enabling receivers to quickly be developed that provide a seamless user experience, and maximum re-use of code.

Digital Radio Mondiale (DRM)™

The RS500 is the first module from RadioScape to implement the new Digital Radio Mondiale (DRM) standard. DRM is the only global standard for the digitisation of broadcasting in the AM (SW, MW and LW) frequency band. Able to cover great distances and provide near "FM quality" audio using much lower transmission power and smaller amount of spectrum, DRM is currently being widely adopted around the world to provide new and higher quality broadcasts for both national and international audiences. Over 30 Broadcasters are already transmitting using DRM across the globe and include the BBC (World Service), Deutsche Welle, RTL, Radio Nederlands, and TDF. More information can be found at www.drm.org

End to End Digital Radio Solutions



RS500 Key Features

The RS500 offers the receiver manufacturer an unprecedented feature set on which to base multi-standard receiver designs:

- DRM, DAB (Band III and L-Band), AM (Longwave, Mediumwave and Shortwave) and FM
- Support for AMSS and RDS
- Integrated service database listing services alphabetically, regardless of transmission type
- Pause and rewind of live DAB and DRM broadcasts
- USB interface, Mass Storage Class compatible (from March '06)
- Record to, and play back from MMC of DAB/DRM broadcasts
- Optional play back of MP3 and WMA files from MMC
- Time recordings of DAB and DRM
- Electronic Program Guide (EPG)
- Service linking and Service following (manual or automatic) application within and between bands
- Support for a wide variety of monochrome and colour displays
- Low power consumption – suitable for mains and battery/mains receiver designs
- Same footprint as RS300L DAB module for integration into existing receiver designs
- Optional I²C and S/PDIF interfaces
- Infrared remote control support
- Optional CD transport control and MP3/WMA playback
- Software upgradeable via USB port
- Alarm clock application with multiple alarms.

DRM Operation

- Support for 4.5, 5, 9, 10, 18 and 20 KHz spectral occupancy
- Modes A, B, C and D
- Service scanning with on board integrated service database
- Optional download of service database via USB port (requires app. Development)
- Support for radiotext
- Signal Strength Indication for optimal receiver positioning.

RF Specifications

Parameter	Condition	Min	Typical	Max	Unit
Input Impedance	VHF and L-Band Antenna connection points		50 nominal		Ω
AM Operation					
RF Frequency Range LW		153		280	kHz
RF Frequency Range MW		525		1705	kHz
RF Sensitivity	S+N)/N = 26dB		55		μ V
Large Signal Handling Capacity			300		mV
(S+N)/N	Ultimate signal to noise ratio	50			dB
THD				2	%
FM (with RDS) Operation					
RF Frequency Range		87.5		108	MHz
RF Sensitivity	(S+N)/N = 26dB		2		μ V
RF Limiting Sensitivity			1.2		μ V
Large Signal Handling Capacity			500		mV
(S+N)/N	Ultimate signal to noise ratio	62			dB
THD	Deviation 22.5kHz		0.3		%
DAB Band III Operation					
RF Frequency Range		174		240	MHz
Adjacent Channel Selectivity	Measurement to EN50248	35	40		dB
Far-off Selectivity	Measurement to EN50248	45	55		dB
Sensitivity	Measurement to EN50248	-96	-99		dBm
Maximum Input Signal for a BER of 10^{-4}		-15	-10		dBm
Frequency Grid			16		kHz
DAB L-Band Operation					
RF Frequency Range		1452		1492	MHz
Adjacent Channel Selectivity	Measurement to EN50248	35	40		dB
Far-off Selectivity	Measurement to EN50248	45	55		dB
Sensitivity	Measurement to EN50248	-95	-98		dBm
Maximum Input Signal for a BER of 10^{-4}		-20	-15		dBm
Frequency Grid			16		kHz
DRM Operation					
RF Frequency Range		0.1485		27	MHz
Blocking			60		dB
Far-off Selectivity			60		dB
Sensitivity		8			dBuV
Dynamic Range		76			dB

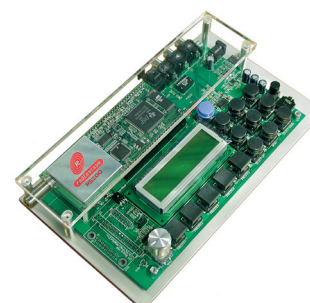
General Specifications

Parameter	Condition	Min	Typical	Max	Unit
Module Power Consumption				<2.0	W
Module Power Requirement				+5	V
Operating Temperature Range		-10		70	°C
Storage Temperature Range		-40		85	°C
Dimensions	44mm x 110mm x 15mm				
FM Sampling Frequency			8.192		MHz
DAB Sampling Frequency			8.192		MHz
DRM Sampling Frequency			3.072		MHz
IF ADC Precision			8		Bits
Audio THD of DAC				0.1	%
Audio SNR of DAC		85			dB

This datasheet provides preliminary information and is subject to change without notice. For the latest information please contact your RadioScape Account Manager.

Evaluation Kits

All RadioScape modules are available as part of an Evaluation Kit enabling engineers and designers to develop their own receiver designs. The kit consists of a module, evaluation/development board, full documentation and the necessary software required to begin the development process. Please contact RadioScape or your local agent to order these kits.



Evaluation Kit

CORPORATE INFO

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RadioScape® Ltd. is one of the world leaders in Software Defined™ solutions for Digital Radio applications. RadioScape simplifies the creation of wireless receivers and transmission infrastructure for digital radio, partners with Texas Instruments to create digital radio chips for consumer products, and designs its own family of DAB/FM modules including the RadioScape RS200™. Founded in 1996, RadioScape's investors include Royal Bank Ventures, Scottish Equity Partners, Atlas Venture, JAFCO, Texas Instruments, Yasuda Enterprise Development, iGlobe Partners, Psion and NTL. RadioScape is headquartered in London, UK England. For more information, please contact us or visit our website. t: +44 (0) 207 317 1972, e: info@radioscape.com, website: www.radioscape.com

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