RSP1B
14-bit SDR

The SDRplay RSP1B is an enhanced version of the popular RSP1A powerful wideband full featured 14-bit SDR which covers the RF spectrum from 1kHz to 2GHz. The RSP1B comes in a rugged black painted steel case and has significantly improved noise performance. All it needs is a computer and an antenna to provide excellent communications receiver functionality. It comes with a choice of SDRuno™ for Windows and multiplatform SDRconnect™ SDR software for Windows, MacOS and Linux (supplied free of charge by SDRplay). You can monitor up to 10MHz of spectrum at a time. A documented API allows developers to create new demodulators or applications around the platform.

KEY BENEFITS & FEATURES

- New, enhanced version of the RSP1A in a rugged black painted steel case
- Improved noise performance below 1MHz and in the 3.5-5.5MHz, 50-60 MHz and 250-320MHz ranges
- Improved signal handling at HF frequencies.
- Covers all frequencies from 1kHz through VLF, LF, MW, HF, VHF, UHF and L-band to 2GHz, with no gaps
- Receive, monitor and record up to 10MHz of spectrum at a time
- 14-bit ADC silicon technology for excellent dynamic range
- Multiple high-performance preselect filters minimize phantom signal problems
- Software selectable AM/FM & DAB broadcast band notch filters minimise intermodulation problems from strong interferers
- Multiple individual receivers in any 10MHz slice of spectrum
- Free use of Windows-based SDRuno software (check website for versions supported)
- Free use of SDRconnect SDR and server software for Windows, MacOS and Linux (Check website for versions supported)
- Multiplatform driver and API support including Windows, Linux, Mac, Android and Raspberry Pi 4/5
- Powers over the USB cable with a simple, robust type B socket
- Software selectable 4.7V Bias-T for powering an external remote antenna amplifier
- Calibrated S meter/ RF power and SNR measurement
- Compatible with many 3rd Party software digital decoders
- Documented API provided to allow demodulator or application development on multiple platforms
- Strong and growing software support network

APPLICATIONS

Amateur
Shortwave radio listening
Broadcast DXing (AM/FM/TV)
Panadaptor
Aircraft (ADS-B and ATC)
Slow Scan TV
Multi-amateur band monitoring
WSPR & digital modes
Weather fax (HF and satellite)
Satellite monitoring
Geostationary environmental satellites
Trunked radio
Utility and emergency service monitoring
Fast and effective antenna comparison

Industrial
Spectrum Analyser
Surveillance
Wireless microphone monitoring
RF surveying
IoT receiver chain
Signal logging
RFI/EMC detection
Broadcast integrity monitoring
Spectrum monitoring
Power measurement

Educational/Scientific
Teaching
Receiver design
Radio astronomy
Passive radar
Ionosonde
Spectrum analyser
Receiver for IoT sensor projects
Antenna research

Please note: This product launched in February 2024 and initially only SDRplay software and APIs were released by SDRplay. Other 3rd Party software may not yet be compatible with the RSP1B. Please check specific 3rd Party application for compatibility via www.sdrplay.com/third-party

NEW SDRconnect™ SDR software for Windows, MacOS and Linux/Raspberry Pi

- All new intuitive graphical interface launched in 2023
- Highly integrated native support for the SDRplay family on Windows, MacOS, and Linux/Rasberry Pi 4/5
- Multiple 'virtual receivers' for simultaneous reception and demodulation of different types of signals within the same receiver bandwidth
- Multiple notch filters with BW adjustable to 1Hz
- Synchronous AM mode with selectable/adjustable sidebands.
- Calibrated RF Power Meter with > 100dB of usable range
- Calibrated S-Meter supporting IARU S-Meter Standard
- Integrated server allows remote cross-platform access via high speed LAN and regular internet WAN connectivity
- "Audio" (Compact) mode allows limited bandwidth WAN connections with spectrum visibility up to 10MHz plus multimode audio access (AM/Wideband FM/SSB/CW etc)
- Rolling release model allows for future feature enhancements
- Modular approach for future 3rd party development

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SDRuno™ for Windows FEATURES

- Highly integrated native Windows support for the SDRplay family
- Up to 16 'virtual receivers' for simultaneous reception and demodulation of different types of signals within the same receiver bandwidth
- An integrated frequency scanner (for frequency ranges and stored memory panel lists)
- A selectivity filter with an ultimate rejection greater than 140dB.
- A unique distortion-free double stage AGC with fully adjustable parameters
- AFC for FM signals
- Multiple notch filters with BW adjustable to 1Hz + Notch Lock feature
- A unique synchronous AM mode with selectable/adjustable sidebands, dedicated PLL input filter, & selectable PLL time constants
- SNR (stereo noise reduction), featuring a proprietary noise reduction algorithm for stereo broadcast
- Powerful wideband noise filter for addressing common sources of RFI (e.g. power supplies, internet over DSL etc.)
- Calibration for receiver frequency errors
- RDS support optimised for low signal environment
- Active Noise cancelling
- CAT and Omnirig control
- Calibrated RF Power Meter with > 100dB of usable range
- Calibrated S-Meter supporting IARU S-Meter Standard
- The ability to save power (dBm) and SNR (dB)
- measurements over time, to a CSV file for future analysis
- IQ output accessible for 3rd party applications

RSP1B SPECIFICATIONS

General
- Weight 315g
- Size: 98mm x 94mm x 35mm (case only)
- Low Current: 185 mA (excl bias T)

Connectivity
- Single 50Ω RF connector (SMA socket)*
- USB 2.0 (high speed) type B socket

Frequency Range
- Continuous coverage 1kHz – 2GHz

ADC Characteristics
- Sample frequency 2 – 10.66MSPS
- 14-bit native ADC (2 – 6.048MSPS)
- 12-bit (6.048- 8.064 MSPS)
- 10-bit (8.064- 9.216MSPS)
- 8-bit (> 9.216 MSPS)

Bias T
- Software Selectable 4.7V @ 100mA

Reference
- High Temperature Stability (0.5ppm) TCXO
- In-field trimmable to 0.01ppm.

Maximum recommended input power
- 0dBm continuous, 10dBm for short periods

Typical Noise Figures
- 22dB@300kHz
- 18dB @ 2MHz
- 18dB @ 4MHz
- 15dB @ 12MHz
- 15dB @ 25MHz
- 15dB @ 40MHz
- 5.3dB @ 55MHz
- 3.3dB @ 100MHz
- 3.3dB @ 200MHz
- 6.4dB @ 275MHz
- 7.7dB @ 386MHz
- 3.6dB @ 660MHz
- 5.0dB @ 1500MHz
- 6.3dB @ 1800MHz

IF Modes
- Zero IF, All IF bandwidths
- Low IF, IF bandwidths = 1.536MHz

IF Bandwidths (3dB)
- 200kHz
- 300kHz
- 600kHz
- 1.536MHz
- 5.0MHz
- 6.0MHz
- 7.0MHz
- 8.0MHz

Front End Filtering

Automatically configured front end filtering:

Low Pass
- 2MHz

Band Pass
- 2-12MHz
- 12-30MHz
- 30-60MHz
- 60-120MHz
- 120-250MHz
- 250-300MHz
- 300-380MHz
- 380-420MHz
- 420-1000MHz

High Pass
- 1000MHz

Notch Filters
- FM Filter:

>50dB 85 – 100MHz
- MW Filter:

>30dB 660 – 1550kHz
- DAB Filter:

>30dB 165 – 230MHz

Note: The notch filters above are software selectable and remove specific broadcast bands.

* we recommend the use of an SMA (male) plug on a cable or "pigtail" - avoid large adapters like SMA to SO239 which may place too much strain on the SMA socket. Make sure the plug has a centre pin

All specifications are based on typical operating of conditions of 0 – 35°C and altitudes of less than 2000m. For further information on extended performances ranges please contact SDRplay support.