RSPdx-R2
Multi-antenna port 14-bit SDR

The SDRplay RSPdx-R2 is an enhanced version of the popular RSPdx and is a wideband full-featured 14-bit SDR which covers the entire RF spectrum from 1kHz to 2GHz. Combined with the power of readily available SDR receiver software (including 'SDRuno' for Windows and Multi-Platform 'SDRconnect' supplied by SDRplay) you can monitor up to 10MHz spectrum at a time. The RSPdx provides three software selectable antenna inputs, and an external clock input. All it needs is a computer and an antenna to provide excellent communications receiver functionality. A documented API allows developers to create new demodulators or applications around the platform.

KEY BENEFITS & FEATURES

- 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
- Significantly improved noise performance below 1MHz (i.e. for some MF, LF and below).
- Improved dynamic range below 2MHz both in tuner mode and HDR mode..
- HDR mode below 2MHz giving overall dynamic range and selectivity advantages
- Software selectable choice of 3 antenna ports
- External clock input for synchronisation purposes, or connection to GPS reference clock for extra frequency accuracy
- Excellent dynamic range for challenging reception conditions
- 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
- Strong and growing software support network
- Calibrated S meter/ RF power and SNR measurement with SDRuno (including datalogging to .CSV file capability)
- Documented API provided to allow demodulator or application development on multiple platforms

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 May 2024 and initially only SDRplay software and APIs were released by SDRplay. Other 3rd Party software may not yet be compatible with the RSPdx-R2. Please check specific 3rd Party application for compatibility via www.sdrplay.com/third-party

RSP COMPARISON TABLE

Key specifications and highlights	RSP1A	RSP1B	RSPdx/RSPdx-R2	RSPduo
Continuous coverage from 1kHz to 2GHz	✓	✓	✓	✓
Up to 10MHz visible bandwidth	✓	✓	✓	✓
14-bit ADC silicon technology plus multiple high-performance input filters	✓	✓	✓	✓
Software selectable AM/FM & DAB broadcast band notch filters	✓	✓	✓	✓
4.7V Bias-T for powering external remote antenna amplifier	✓	✓	✓	✓
Powers over the USB cable with a simple type B socket	✓	✓	✓	✓
50Ω SMA antenna input(s) for 1kHz to 2GHz operation (software	1	1	2	2
Additional software selectable Hi-Z input for up to 30MHz operation				✓
Additional software selectable 50Ω BNC input for up to 200MHz operation			✓	
Additional LF/VLF filter for below 500kHz			✓	
HDR mode below 2MHz for Higher Dynamic Range			✓	
24MHz Reference clock input (+ output on RSPduo)			✓	✓
Dual tuners enabling reception on 2 totally independent 2MHz ranges				✓
Dual tuners enabling diversity reception using SDRuno and SDRconnect				✓
Robust and strong plastic case (with internal RF shielding layer)	✓			
Rugged black painted steel case		✓	✓	✓

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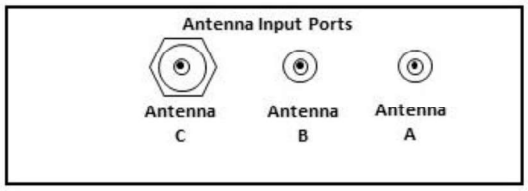
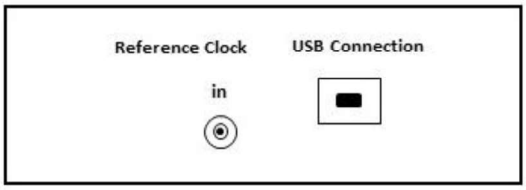
SDRuno FEATURES

- High Dynamic Range mode ("HDR") for RSPdx use below 2MHz
- Highly integrated native Windows support for the SDRplay family
- Multiple '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

CONNECTIONS





SPECIFICATIONS

General
- Weight 315g
- Size: 113mm x 94mm x 35mm
- Low current consumption:
  - 190mA @ >60MHz (excl Bias T)
  - 120mA @ <60MHz (excl Bias T)

Connectivity
- USB 2.0 (high speed) type B socket

Frequency Range
- Continuous coverage 1kHz – 2GHz

Antenna A Port Characteristics
- 1kHz – 2GHz operation
- 50Ω input impedance
- SMA female connector

Antenna B Port Characteristics
- 1kHz – 2GHz operation
- 50Ω input impedance
- SMA female connector
- Selectable 4.7V DC out (see Bias T)

Antenna C Port Characteristics
- 1kHz – 200MHz operation
- 50Ω input impedance
- BNC female connector

Reference Clock Input
- MCX female connector

Bias T (Antenna B Port only)
- Software selectable 4.7V @ 100mA

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

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)

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

Reference
- High temp stability 0.5PPM TCXO
- In-field trimmable to 0.01ppm.

External Reference Clock
- Plug in the external clock before power-up. Auto-detect will switch to the external reference.
- Frequency 24MHz sine/square wave
- 1V Pk-Pk Min
- 3.3V Pk-Pk Max

Typical Noise Figures
- 19dB @ 300kHz
- 18dB @ 2MHz
- 17dB @ 12MHz
- 15dB @ 25MHz
- 15dB @ 40MHz
- 2.6dB @ 100MHz
- 2.1dB @ 200MHz
- 6.0dB @ 340MHz
- 3.1dB @ 660MHz
- 4.4dB @ 1500MHz
- 5.0dB @ 1800MHz

Notch Filters
- FM Notch Filter:

>30dB 77 – 115MHz
>50dB 85 – 107MHz
>4dB 144 – 148MHz

- MW Notch Filter:

>15dB 400 – 1650kHz
>30dB 500 – 1530kHz
>40dB 540 – 1490kHz

- DAB Notch Filter:

>20dB 155 – 235MHz
>30dB 160 – 230MHz

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

Front End Filtering
Low Pass
- 500kHz
- 2MHz

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

High Pass
- 1000MHz

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.