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-R2 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
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- 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
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Amateur	Industrial	Educational/Scientific
Shortwave radio listening	Spectrum Analyser	Teaching
Broadcast DXing (AM/FM/TV)	Surveillance	Receiver design
Panadaptor	Wireless microphone monitoring	Radio astronomy
Aircraft (ADS-B and ATC)	RF surveying	Passive radar
Slow Scan TV	IoT receiver chain	Ionosonde
Multi-amateur band monitoring	Signal logging	Spectrum analyser
WSPR & digital modes	RFI/EMC detection	Receiver for IoT sensor projects
Weather fax (HF and satellite)	Broadcast integrity monitoring	Antenna research
Satellite monitoring	Spectrum monitoring	
Geostationary environmental satellites	Power measurement	
Trunked radio		
Utility and emergency service monitoring		
Fast and effective antenna comparison		

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
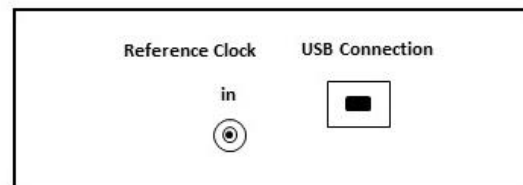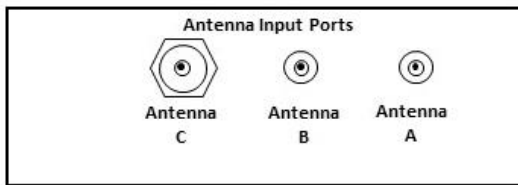
NEW SDRconnect™ SDR software for Windows, MacOS and Linux/Raspberry Pi
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- All new intuitive graphical interface launched in 2023
- High Dynamic Range mode ("HDR") for RSPdx-R2 use below 2MHz
- Highly integrated native support for the SDRplay family 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

SDRuno™ for Windows FEATURES

- High Dynamic Range mode ("HDR") for RSPdx-R2 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

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      Antenna Input Ports

   (⊙)        (⊙)        (⊙)
  Antenna    Antenna    Antenna
    C          B          A
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  Reference Clock    USB Connection

        in
       (⊙)            [ ▬ ]
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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

Antenna port isolation
- Unselected port isolation 40dB min

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.