



# Radio Spectrum Processor 2 & Radio Spectrum Processor 2pro

The RSP2 and RSP2pro are powerful wideband full-featured SDR receivers which cover all frequencies from 1kHz up to 2GHz. The RSP2 and RSP2pro provide three software selectable antenna inputs, and clocking features ideally suited to industrial, scientific and educational applications. By using SDRplay's own powerful SDRuno software, this versatile receiver can monitor up to 10MHz of spectrum and accurately record RF power and noise measurements over time. A documented API allows developers to create new demodulators or applications around the platform. The RSP2 is housed in an RF shielded robust plastic case and the RSP2pro is enclosed in a rugged black painted steel case.



RSP2

RSP2 pro

## KEY BENEFITS

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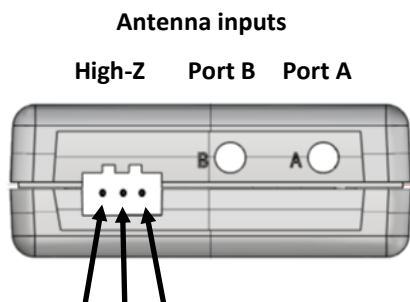
- Covers all frequencies from 1kHz through LF, MW, HF, VHF, UHF and L-band with no 'gaps'
- Supports up to 3 simultaneously connected antennas (2 x 50-Ohms and one High-Z port for lower frequencies)
- Ability to synchronise multiple RSPs
- Excellent dynamic range for challenging reception conditions
- Works with all the popular SDR software (including HSDR, SDR Console, Cubic SDR and SDRuno)
- ExtIO based plugin available
- Software upgradeable for future standards
- Strong and growing software support network
- API provided to allow demodulator or application development
- Multiplatform driver and API support including Windows, Linux, Mac, Android and Raspberry Pi 2/3
- Up to 16 individual receivers in any 10MHz slice of spectrum using SDRuno
- Calibrated S meter and accurate power and SNR measurements with SDRuno
- Ideal for monitoring of ISM/ IoT/ Telemetry bands <2GHz
- Ideal for portable operation

## KEY FEATURES

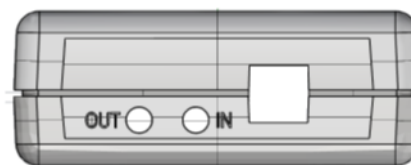
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- Continuous coverage from 1kHz to 2GHz
- 3 software-selectable antenna sockets
- External clock input and output for synchronisation purposes, or connection to GPS reference clock
- Up to 10MHz visible bandwidth
- Powers over the USB cable with a simple type B socket
- High Performance ADC silicon technology (not another 8-bit dongle!)
- 10 high-selectivity, built in front-end preselection filters
- Software selectable AM/FM broadcast band notch filters
- Software selectable multi-level Low Noise Preamplifier
- Bias-T power supply for powering antenna-mounted LNA
- RF shielding layer inside robust plastic case option (RSP2)
- Rugged metal case option (RSP2pro)
- SDRuno—World Class SDR software for Windows
- Documented API for new apps development
- World-class support via [www.sdrplay.com](http://www.sdrplay.com)

## CONNECTIONS



Balanced I/P : P N GND



Ref O/P Ref I/P USB

## SDRuno FEATURES

- 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.
- A selectivity filter with an ultimate rejection greater than 140dB.
- A unique distortion-free double stage AGC with fully adjustable parameters.
- Multiple notch filters with BW adjustable to 1Hz + Notch Lock feature.
- A unique synchronous AM mode with selectable/adjustable sidebands, dedicated PLL input filter, and selectable PLL time constants.
- SNR (stereo noise reduction), featuring a proprietary noise reduction algorithm for stereo broadcast.
- AFC for FM signals.
- Calibration for receiver frequency errors.
- RDS support with "DX Mode" 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

## SPECIFICATIONS

### General

- RSP2 Weight: 112g
- RSP2 Size: 98mm x 86mm x 32mm
- RSP2pro Weight: 296g
- RSP2pro Size: 99mm x 87mm x 33mm
- Low current: 170mA typical (excl Bias T)

### Connectivity

#### USB

- USB 2.0 (high speed) type B socket

#### Port A Characteristics

- 1.5MHz – 2GHz operation
- 40dB RF gain control
- 50Ω input impedance
- SMA Female connector

#### Port B Characteristics

- 1.5MHz – 2GHz operation
- 40dB RF gain control
- 50Ω input impedance
- SMA Female connector
- Selectable 4.7V DC out (see Bias T)

#### High-Z port Characteristics

- 1kHz – 30MHz operation
- 18dB RF gain control
- 1kΩ input impedance (balanced)
- Pluggable screw connector (CTB9208/3 plug supplied)



#### Reference clock I/O

- MCX Female connector

### IF Modes

- Zero IF, All IF bandwidths
- Low IF, IF bandwidths ≤ 1.536MHz

### IF Bandwidths

- 200kHz, 300kHz, 600kHz, 1.536MHz
- 5.0MHz, 6.0MHz, 7.0MHz, 8.0MHz

### Bias T

- Software selectable 4.7V @ 100mA output voltage on Port B.

### Reference

- High Temperature Stability (0.5ppm) TCXO
- In-field trimmable to 0.01ppm.
- 24MHz Reference in/out connections

### ADC Characteristics

- Sample frequency up to 10.66MSPS
- 10.4 ENOB @ 8 MSPS
- 60dB SNR @ 8 MSPS
- 67dB SFDR @ 8 MSPS

### NF (max RF gain)

- 8dB @ 3MHz
- 2.0dB @ 10MHz
- 1.6dB @ 20MHz
- 1.5dB @ 40MHz
- 1.5dB @ 100MHz
- 1.9dB @ 200MHz
- 5.0dB @ 360MHz
- 2.5dB @ 600MHz
- 3.5dB @ 1300MHz
- 4.0dB @ 1800MHz

### IIP3 (min LNA gain)

- +15dBm @ 3MHz

### Front End Filtering (Ports A and B) (automatically configured)

#### Low Pass

- 12MHz

#### Band Pass

- 12 – 30MHz
- 30 – 60MHz
- 60 – 120MHz
- 120 – 250MHz
- 250 – 300MHz
- 300 – 380MHz
- 380 – 420MHz
- 420 – 1000MHz

#### High Pass

- 1000MHz

#### Notch Filters

- FM Filter >50dB 80 – 100MHz
- MW Filter >30dB 680 – 1550kHz

### Front End Filtering (High-Z port)

#### Low Pass

- 30MHz