nRSP-ST Networked 1kHz - 2GHz Receiver

All-in-one, plug-and-play networked receiver*

Product Description

The nRSP-ST is a truly "plug and play" integrated, networked general coverage receiver which combines a receiver, a host computer and a whole lot more all in one box. Apply power and connect to the internet and the nRSP-ST can be accessible from anywhere.
The receiver comprises a full-featured 14-bit software defined radio. It offers up to 10MHz of spectrum visibility anywhere between 1kHz and 2GHz. The nRSP-ST is ideal as a stand-alone device with remote connections made accessible via its Ethernet or WiFi interfaces. The unit supports a choice of three data transport modes to suit the available network bandwidth of LAN or WAN connectivity. It is ideal for use in a low noise location or where connections to large outdoor antennas are feasible. Large IQ files can readily be stored on a local storage device. SDRplay provides free companion SDRconnect™ client SDR software for Windows, MacOS and Linux platforms, and the nRSP-ST provides a built-in web-serverfor remote access from most up-to-date web browsing capable devices, including Android/iOS tablets and phones.

Features

These may change with future firmware updates

- A truly "plug and play" remote access 14-bit general coverage SDR radio receiver
- Covers all frequencies from 1kHz through VLF, LF, MW, HF, VHF, UHF and L-band to 2GHz
- Connect to the internet (ethernet or Wi-Fi) & the nRSP-ST can be accessed from anywhere with a choice of connectivity modes. A stable WebSocket API allows for 3rd party apps to access.
- Receive, monitor and record up to 10MHz of spectrum at a time.
- Software selectable choice of 3 antenna ports
- External clock input for synchronisation purposes
- Choice of 3 SDRconnect™ data connectivity mode options to ensure optimised remote access
- Supports multiple client connections with a simultaneous mixture of connection modes
- Choice of 2 remote access options – use SDRconnect™ remote client, or the built-in web-server for access from any web browsing capable device, including Android/iOS tablets and phones
- The ability to record IQ and audio files to a NAS (network attached storage) device if available
- Designed for long term continuous usage (no noisy or unreliable cooling fan)

General

Product Name	nRSP-ST
Product Dimensions	200mm x 105mm x 40mm
Weight	800g
Frequency Coverage	1kHz to 2GHz Continuous coverage
Ambient Temperature	25°C
Useable Temperature Range	-10°C to +60°C
Environmental	Indoor Use

Power

Typical Current Consumption	
USB Connection	490mA
Ethernet Connection	600mA
WiFi Connection	500mA
Power Supply Requirements	
Input Voltage Range	90V AC to 264V AC
Input Frequency Range	47Hz to 63Hz
Output Voltage Rating	+5.1V DC
Output Current Max	3A Max
Output Power Max	15.3W
Supplied Power Supply	Multicomp MP001636
Power Supply Connector	USB C

Note: PoE (Power over Ethernet) is not provided. An external device would be needed (e.g. a low noise, "Type C Port PoE Splitter Gigabit 5V/2.4A, PoE to USB-C 5V/2.4A Output, 1000Mbps Gigabit Ethernet Compliant")

Antenna Connections

Antenna A Frequency Coverage	1kHz to 2GHz Continuous coverage
Antenna A Impedance/ Connector	50Ω SMA
Antenna B Frequency Coverage	1kHz to 2GHz Continuous coverage
Antenna B Impedance/ Connector	50Ω SMA
Antenna B Bias-T specification	4.7V, 100mA maximum current
Antenna C Frequency Coverage	1kHz to 200MHz Continuous coverage
Antenna C Impedance/ Connector	50Ω BNC
Unselected port isolation	40dB

*SDRconnect is required

nRSP-ST Technical Specifications

Receiver	Maximum Input Power continuous	0dBm
	Maximum Input Power burst	+10dBm
	Noise Figure	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
	Band Filtering	500kHz (low pass) 2MHz (low pass) 2-12MHz 2-30MHz 30-60MHz 60-120MHz 120-250MHz 250-300MHz 300-380MHz 380-420MHz 420-1000MHz 1GHz (high pass)
	Notch Filters	Selectable MW, FM and DAB Notch Filters
	ADC Characteristics	14-bit native ADC (2 – 6.048 MSPS) 12-bit (6.048 - 8.064 MSPS) 10-bit (8.064 - 9.216 MSPS) 8-bit (> 9.216 MSPS)
Receiver Reference	Receiver Reference Frequency	24MHz
	Reference Stability	0.5ppm -30°C to +85°C
	External Reference Connector	MCX
	External Reference Frequency	24MHz Sine/Square
	External Reference Level	1V Pk-Pk Min, 3.3V Pk-Pk Max
	External Reference features	Auto-detect will switch to the external reference on power up if clock source present
Compute Engine	Processor	64bit Quad Core SoC 1.5GHz
	Memory	≥1GB LPDDR4-3200 SDRAM ≥8GB eMMC Storage
	Modular Compliance	https://pip.raspberrypi.com/categories/635-compliance
Connectivity	Direct connection	USB 2.0 compliant USB interface
	Ethernet connection	Gigabit Ethernet IEEE 1588-2008 compliant Detection and correction of swapped ports MDI crossover, pair skew + pair polarity correction
	WiFi	2.4GHz and 5.0GHz IEEE 802.11b/g/n/ac wireless
	Connectivity compliance	Modular compliance certified https://pip.raspberrypi.com/categories/635-compliance
Connectivity Modes	USB	High Bandwidth 10MHz connection **Full IQ Mode** Remote access for high bandwidth networks (e.g. GB ethernet) Full functionality as in USB Mode
	Ethernet and Wi-Fi	**IQ Lite Mode** Remote access for lower bandwidth networks For applications requiring <192kHz demodulated signal, while still giving up to 10MHz spectrum visibility **Compact (Audio + spectrum) Mode** Remote access for low bandwidth networks enables full demodulation of AM/FM/CW/SSB audio, while still giving up to 10MHz spectrum visibility

Please note:
You can connect to the local network via either ethernet or Wi-Fi with a choice of connectivity modes. You can make it accessible over the internet using port forwarding. Alternatively, it can be connected to a computer via the USB port (no additional functionality, SDRconnect use only and not at the same time as the ethernet port)

Connections