



Ultra Wide-band Coverage SDR Receiver MK4

- Full coverage reception form 100KHz to 2GHz SDR
- Direct Sample Mode \*
- Very High performance Pre-amplifier +33dBm IP3\*
- Font-end input antennas protection\*
- Shielded Aluminum box\*

- Independent antenna inputs for Shortwave and VHF&Up
- USB computer connection (micro-usb)
- Accurate and efficient band filters
- Very clean audio reception
- SMA golden antenna connectors
- LED power indication
- Small size
- Freeware software Windows, Linux, Android, IOS.
- Up to 3.2 M Sample rate.

\*New

### What can we listen with DXpatrol?

The Dxpatrol can be used as a wide band radio scanner. Applications include:

•Listening to unencrypted Police/Ambulance/Fire/EMS conversations.

- •Listening to aircraft traffic control conversations.
- •Tracking aircraft positions like a radar with ADSB decoding.
- •Decoding aircraft ACARS short messages.

•Scanning trunking radio conversations.

•Decoding unencrypted digital voice transmissions.

•Tracking maritime boat positions like a radar with AIS decoding.

•Decoding POCSAG/FLEX pager traffic.

- •Scanning for cordless phones and baby monitors.
- •Tracking and receiving meteorological agency launched weather balloon data.
- •Tracking your own self launched high altitude balloon for payload recovery.
- •Receiving wireless temperature sensors and wireless power meter sensors.

•Listening to VHF amateur radio.

•Decoding ham radio APRS packets.

•Watching analogue broadcast TV.

•<u>Sniffing GSM</u> signals.

•Use on your Android device as a portable radio scanner.

•Receiving GPS signals and decoding them.

•Use as a <u>spectrum analyzer</u>.

•Receiving NOAA weather satellite images.

•Listening to satellites and  $\underline{\text{the ISS}}$ .

Radio astronomy.

•Monitoring meteor scatter.

•Listening to FM radio, and decoding RDS information.

•Listening to DAB broadcast radio.

•Use as a panadapter for your traditional hardware radio.

•Decoding taxi mobile data terminal signals.

•Use as a high quality entropy source for random number generation.

•Use as a noise figure indicator.

•Reverse engineering <u>unknown protocols</u>.

•Triangulating the source of a signal.

•Searching for RF noise sources.

•Characterizing RF filters and measuring antenna SWR.



## Technical data DX-Patrol

@ 14MHz, CW, 500Hz, SDR#				
Noise Floor:	-117dBm			
AGC Threshold:	22 μV (wideband 2MHz w/ max RF gain -45dBm total)			
100 kHz Blocking Range:	77dB (useful range, top-bottom = $77$ dB)			
Reciprocal Mixing Dyn. Range:	76dB			
Narrow spacing dyn. range IMD3:	66dB			
	@ 50MHz			
Narrow spacing dyn. range IMD3: 73dB				
@ 144MHz				
Narrow spacing dyn. range IMD3:	63dB			

### New MK4 SDR

It offers a better connection via micro-USB cable into a PC or a Android Smartphone and Tablets





The blue LED light color will indicate. USB is Cable connection to PC and Cable OTG Male-Male to use in any Tablet/Smartphone

### Drivers Installation for Windows



First of all run the Zadig. Download here: <u>http://zadig.akeo.ie/</u> Connect the DX-patrol to the PC with USB standard cable and run Zadig.

- If "device not found" please look on > options
- Off click the second line > Ignore Hubs or Composi...

Z		Zadig		- 🗆 🗙
Device	Opt	ions Help	_	
	4	List All Devices	1	
USB		nore Hubs or Composite Parents		Y 🗌 Edit
Driver	> >	Create a Catalog File Sign Catalog & Install Autogenerated Certificate		More Information WinUSB (libusb)
USB II WCID		Advanced Mode Log Verbosity		libusb-win32 libusbK WinUSB (Microsoft)
11 device	es fou	nd.		Zadig 2.1.0.658

RTL2832U ( or similar ) found

🚾 Zadig		
Device Options Help		
RTL2832U		- Edit
Driver (NONE)	WinUSB (v6.1.7600.16385)	More Information
USB ID OBDA 2832	Install Driver	libusb-win32 libusbK WinUSB (Microsoft)
3 devices found.		Zadig v2.0.1.16

### Install Driver

Driver Installation					
1	The driver was installed successfully.				
	Close				

Great! Time to have fun.

There are a lot of good free software you can now download and play

Here some suggestions

HDSDR get here: <u>http://www.hdsdr.de/</u> And also this DLL here how to: <u>http://hdsdr.de/RTLSDR\_with\_HDSDR.pdf</u>



## To Listen HF with HDSDR:

Just click ExtIO ( before start) and choose **Q- Input** The HF antenna will be automatic selected by SDR



## To Listen VHF and UP with HDSDR

Just click on ExtIO and select Disabled

VHF and UP antenna will be automatic selected by SDR



<u>Use the Same procedure on every Software you using</u> : SDRSharp, HDSDR, SDR-RADIO, CubicSDR, SDRTouch etc Note: there is no Up-conversion on MK4. Tuning is direct on display.

Q-Input is HF - Reception from 100Khz to 30Mhz Disabled . Is VHF and UP Reception from 30Mhz to 2000Mhz

ExtIO_RTL2832.DLL v2014	4.2	Х
Device:	Tuner Gain	I.
Direct Sampling:		
Q input ~		
Buffer Size:		
64 kB 🗸 🗸		
<b>FFi</b>	Tuner AGC	$\checkmark$
0 ppm	RTL AGC Offset Tuning	

ExtIO_RTL2832.DLL v2014	1.2 ×	<
	Tuner Gain AGC	
Direct Sampling:		
Disabled Sample Rate:		
0.96 Msps V		
64 kB V		
	Ē	
	Tuner AGC 🗹	
Frequency Correction:	RTL AGC	

## More Software installation:

### SDR SHARP After download and install in a folder sdr#



Open Folder and look for link "install-rtlsdr" click on it a black box will open and install all necessary drivers. Also run the Zadig included on folder.

ADSBSpy	17-07-2016 13:04	Aplicação	87 KB		
airspy.dll	20-11-2015 11:45	Extensão da aplica	239 KB		
AirspyCalibrate	20-07-2017 00 <mark>:45</mark>	Aplicação	122 KB		
AirspyCalibrate.exe.config	13-05-2017 20 🔤 C:	\WINDOWS\system32\cmd.	exe	- 🗆	×
airspyhf.dll	09-07-2017 1( infla	ting: tmp/rtl-sdr-release	e/COPYING.pthreads-win32		~
🖾 AstroSpy	20-07-2017 0( infla	ting: tmp/rtl-sdr-release ting: tmp/rtl-sdr-release	e/README.windows.txt		
AstroSpy.exe.config	28-03-2016 17 infla	ting: tmp/rtl-sdr-release ting: tmp/rtl-sdr-release	e/rtl-sdr.h e/rtl-sdr_export.h		
🔮 BandPlan	13-08-2016 0( crea	ting: tmp/rtl-sdr-release	e/x32/		
ExtIO_RTL.dll	16-01-2013 2( infla	ting: tmp/rtl-sdr-release	2/x32/libusb-1.0.dll		
ExtIO_RTL_TCP.dll	02-11-2016 19 infla	ting: tmp/rtl-sdr-release ting: tmp/rtl-sdr-release	e/x32/rtlsdr.dll		
ProntEnds	31-10-2015 14 infla	ting: tmp/rtl-sdr-releas ting: tmp/rtl-sdr-releas	e/x32/rtlsdr.lib e/x32/rtlsdr_static.lib		
hackıf.dll	21-09-2015 09 infla	ting: tmp/rtl-sdr-release	e/x32/rtl_adsb.exe e/x32/rtl_eeprom.exe		
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🚳 libusb-1.0.dll	14-09-2015 02 infla	ting: tmp/rtl-sdr-releas ting: tmp/rtl-sdr-releas	e/x32/rtl_tcp.exe e/x32/rtl_test.exe		
	19-09-2015 1: crea	ting: tmp/rtl-sdr-release ting: tmp/rtl-sdr-release	e/x64/ e/x64/convenience static.lib		
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Msvcr100.dll	13-09-2015 22 infla	ting: tmp/rtl-sdr-release	e/x64/rtlsdr.dll		
Plugins 🔮	19-07-2017 13.20	ting: tmp/rtl-sdr-release	2/x64/rtlsdr.lib		~
PortAudio.dll	09-08-2016 16:59	Extensão da aplica	80 KB		
pthreadVCE2.dll	21-09-2015 09:43	Extensão da aplica	61 KB		
🚳 rtlsdr.dll	24-01-2014 17:32	Extensão da aplica	43 KB		

## Run program normaly.



## Download from here: SDR-RADIO



http://sdr-radio.com/Software/Download/Download-Kits

Download and install the latest version os SDR-Radio SDR software

Also download the USB drivers here: https://meocloud.pt/link/a894d7f9-1fcf-4412-a5fe-eced48adddd0/-SDR-RADIO-Pro\_RTLDongleSupport.exe/

#### Install SDR-radio and SDR-Drivers USB-RTL



🌐 SDR-Radio.com (RTL Dongle DLLs) Setup 🛛 🗌 🗙
Choose Users Choose for which users you want to install SDR-Radio.com (RTL Dongle DLLs).
Select whether you want to install SDR-Radio.com (RTL Dongle DLLs) for yourself only or for all users of this computer. Click Next to continue.
Install for anyone using this computer
◯ Install just for me
RTL Dongle support for SDR-Radio.com (NSIS installer) —————
< Back Next > Cancel
·
🌍 SDR-Radio.com (RTL Dongle DLLs) Setup 🦳 🗌 🗙
Choose Install Location Choose the folder in which to install SDR-Radio.com (RTL Dongle DLLs).
Setup will install SDR-Radio.com (RTL Dongle DLLs) in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\SDR-RADIO-PRO.com\ Browse
Space required: 2.8MB Space available: 752.9GB
RTL Dongle support for SDR-Radio,com (NSIS installer)
< Back Install Cancel

🌍 SDR-Radio.com (RTL Dongle DLLs) Setup		_		$\times$
Installation Aborted Setup was not completed successfully.				
Can't write: C:\Program Files\SDR-RADIO-PRO.com\rtlsdr.dll				
Show details				
DTI Depaie support for SDD Dadia con (NGIS installer)				
< Back	Next	>	Ca	ncel



Plug the SDR on the USB connector,

You will ear a sound on PC speaker indicating that windows have found the device.

The SDR-Radio program will automatic alert you to choose the device on\_ source



#### Select the RTL SDR USB

The ezcap USB will turns as Green!

The SDR is ready to operate on HF and VHF & UP



The SDR-radio program is very easy to work.

You have all modes for decoding as well lot's of memories broadcast bands, amateur bands etc.

Yahoo Google group: <u>https://groups.yahoo.com/neo/groups/sdr-radio-com/info</u>

When all drivers are OK, you can check on you Device Manager Must be as picture.

4	Gestor de Dispositivos	-	
Ficheiro Ação Ver Ajuda			
Picheiro Ação Ver Ajuda			
Unidades de DVD/CD-ROM			

Linux with GQRX



To listen HF open input box for IQ on device string : Sample\_rate=0 ( for VHF and up) Sample\_rate=3 ( for HF)

more info on <u>https://ct7aez.blogspot.pt/2017/09/dxpatrol-mk4-</u> <u>sdr.html#more</u>

# **About Android**



# There are a Lot of software's available in Google Play



## SDRTouch



Note:

On SDRtouch is same thing, when band select is needed.

Go on PREFS> Direct Sampling > Q Branch ( for HF) or Disable ( for VHF and UP)



#### SDRoid





# Operation with

## Plain Viewer RTL1090

CLSE	RTL1090	) - (c)	jetvisi	on.de	- B:101	BET	A	X
1090	0.0	0	0	N	1 H	z	s	тор
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RTL AGC	OFF			20				
Mode S	Mode AC S	end U	DP 🎹		OFF	SISEX		
List	Flight table	Cont	fig 🗌		🛄 OFF			
ICAO C/S	ALT. MCP	V/S	GS	TT	SSR	G*456^	SG	MSGS
45ACC1 SAS627	F308>300				4771		5	372
440681 BER391E	F390=		452	040	7352	e	5	601
484F06	F031>030	+ 4	215	209				21
44CE70 BEL5MA	F018>040		178	230	7134		- 5	63
449284 BEL54P	F280>310	+ 4	421	220	4746	o	9	209
<10 <20 <40 <80	0 <120 120+					IDP BS		CP HITTP
31 ms 27/sec T	HR: -80db [7]	Port:	31001	A)	IC: 5	R820T-	0000	00014

GET software here: <u>http://rtl1090.web99.de/</u>

## MAC Using Patrolman with GQRX



Here how to install GQRX

https://www.smittix.co.uk/rtlsdr-up-and-running-in-mac-osx-yosemite-with-gqrx-gnuradio/

NOAA Weather satellites RX : <u>http://www.rtl-sdr.com/rtl-sdr-tutorial-</u> receiving-noaa-weather-satellite-images/

There are also many other freeware software's available on internet that you can try.

Gnu radio Linux software: http://rtlsdr.org/softwarelinux



Android: https://play.google.com/store/apps/details? id=marto.rtl\_tcp\_andro&hl=pt\_PT

Enjoy the new World of the radio on a SDR device.

Best 73

Tony

CT1FFU

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