

## Semiprofessional PC - controlled Shortwave Receiver & Platform for Software Defined Radio (SDR)

>>> Compatible with most popular SDR freeware

- 30KHz - 30MHz
  - Allmode
  - High intercept point
  - DDS - VCO
  - 1Hz resolution
  - Double conversion
  - Integrated AGC
  - DRM - proved
- Options:
- USB adapter
  - PREMIUM version:  
Enhanced DRM  
performance  
DRM-SNR >40dB



Meanwhile the DiRaBox DRB 30 is a well-established product for PC-controlled shortwave receivers and SDR platforms. Numerous test reports show an excellent ranking. The unit is often used especially for DRM applications as reference and for propagation studies.

With the DRB 32 we introduce a modified concept especially for semiprofessional applications with enhanced performance:

- Increased sensitivity of about 6dB
- Switchable high intercept range (HighIP) for large signals
- Further improved selectivity
- Expanded interface with additional reset
- 12KHz standard IF output

## DRB 32 - Digital Radio Box

Universal reception up to 30MHz using PC & soundcard



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Software  
Defined Radio -  
Reception

Turn your PC into a top-class communications receiver

What will be needed ?

### 1. DiRaBox

The DiRaBox DRB 32 is a so-called black box receiver under computer control which converts the RF signal to a low frequency IF signal suitable for the PC soundcard.

### 2. PC

A standard PC or notebook with standard soundcard is sufficient. The processor clock rate should exceed 500 MHz and is related to the used SDR software.

The low frequency IF output is connected to the line input of the soundcard (3.5mm stereo jack socket).

Sound is provided by the soundcard via connected earphones or loudspeaker.

### 3. Software

The web offers currently a handfull SDR programs, most of them are experimental freeware.

These programs enable the demodulation of the IF signal delivered by the DiRaBox. They can handle all analogue mode (AM / SSB / FM) and even the new DRM standard

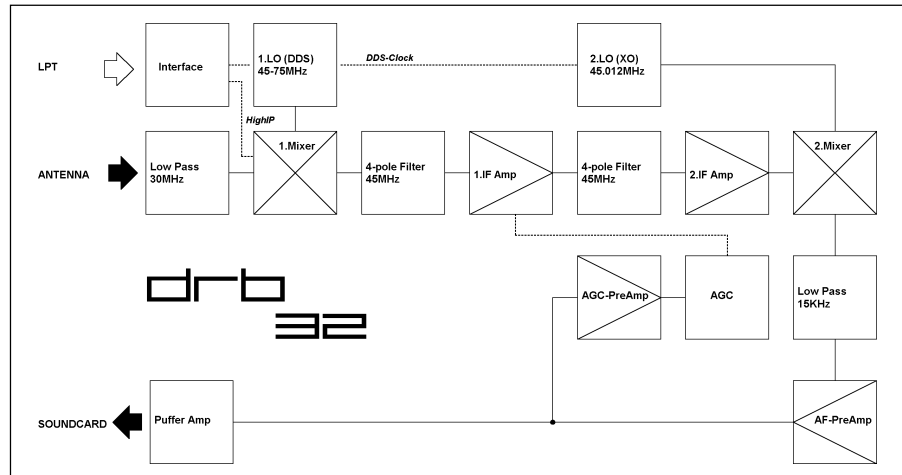
Computer control of the unit is provided by the rear-panel parallel interface port (LPT) or via USB \*\*. Corresponding control software (WIN95/98/2000/XP) is available.

## WORKING PRINCIPLE

The DRB 32 is a dual conversion superhet receiver including a direct digital synthesizer (DDS) for the local oscillator. The DDS principle combines small tuning steps with very low phase noise and excellent short-time stability. The last-mentioned criteria is absolutely important for distortion-free DRM reception.

A high-IP active mixer with an additional switchable high level (HighP) range converts the RF signal to a high IF frequency of 45 MHz. Two cascaded monolithic crystal 4-pole filters (PREMIUM version) guarantee in combination with a selective input low pass filter for extraordinary performance concerning selectivity and mirror frequency suppression.

Next conversion is done to the very low second IF of 12KHz, which can be handled by a standard PC soundcard. An integrated automatic gain control (AGC) always delivers the optimum level for the sound card. The unit is controlled by the parallel interface (LPT) or optionally via USB.



## TECHNICAL DATA

### Tuning Frequency:

30KHz - 30MHz (continous)

### Tuning Steps:

1/5/10/50/100/500Hz & 1/5/9/10KHz

### Antenna Jacket / Impedance:

BNC-socket / 50Ohms  
Remote supply voltage 9V via 470Ohms serial resistor for an optional active antenna (int. switchable)

### Max. Allowed Antenna Level :

+10dBm typ. / saturation at -15dBm typ.

### Noise Floor (0.15-30MHz BW 2.3KHz):

Standard: < -131dBm (0.06µV) typ.

HighIP: < -119dBm (0.25µV) typ.

### Third-order Intercept Point IP3

(@7.00 & 7.20MHz):

Standard: +14dBm typ.

HighIP: +24dBm typ.

### Intermodulation-free Dynamic Range (200KHz offset):

Standard: > 97dB typ.

HighIP: > 95dB typ.

In-Band-Blocking: > 88dB typ.

(20KHz offset / interence signal -33dBm & desired signal -121dBm=S1)

### Frequency Stability (15min. warm-up period):

+/- 1ppm typ.

### DRM-Performance (9/10KHz):

Max. SNR >35dB, PREMIUM >40dB \*

### DDS-related Spurious Supression:

> 70dB typ.

### IF-Supression (@45MHz / 1.IF):

> 85dB

### Image Frequency Rejection:

>65dB / 1.IF (LO + 45MHz)

Standard: >57dB / 2.IF (In-Band -24KHz)

Premium: >70dB / 2.IF (In-Band -24KHz)

### 12KHz-IF-Output (2.IF):

Bandwidth 15KHz (-6dB) via 3.5mm stereo phone jacket

### PC Control Port (LPT):

D-SUB (25pin SUB-D male connector \*\*

### Power Supply / Connector:

12-15V DC max. 200mA / 2.1mm DC-power socket (positiv inner)

### Working Temperature:

0 - 40°C

### Dimension / Weight:

112 x 71 x 31mm / 0.15kg

\* Available on request: Selected version DRB 32 PREMIUM with guaranteed DRM-SNR > 40dB

\*\* Optional USB interface: Pluggable USB to parallel port adapter DRB USB ADP for control via USB



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