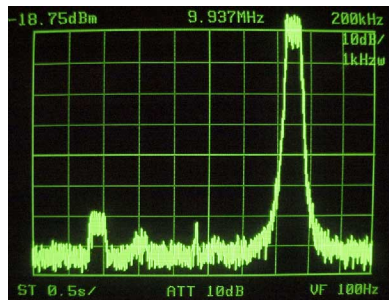
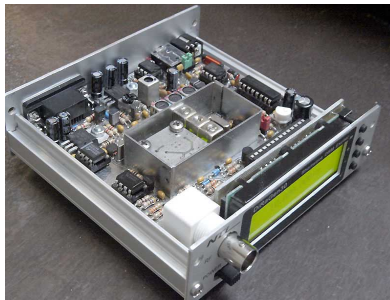


DiRaGen 30

Shortwave DRM Exciter 130KHz - 30MHz



Generating Shortwave DRM - Radio Signals

The importance of the digital shortwave radio standard DRM (Digital Radio Mondiale) continues to grow rapidly. With the DiRaGen 30 we introduce an exciter which converts a PC-generated DRM signal to the shortwave range.



Applications:

- Testing of DRM receivers, laboratories & testing facilities
- Generating a standard DRM signal for demonstration purposes
- Education
- DRM transmission tests

A small, efficient & economic solution

Transmitter software for generating a DRM signal via PC & sound card is already available.

Our new developed exciter DiRaGen 30 converts such a DRM signal to an individual shortwave frequency.

Generating Shortwave DRM Radio Signals

What is needed ?

1. DRM Transmitter Software

Actually the following transmitter software is available for generating a DRM signal via PC & sound card:

- **DREAM (Transmitte Mode)**
- **SPARK DRM Transmitter**

DREAM the pioneer for DRM open source software contains an additional DRM-transmitter module which allows transmission of text & image files.

SPARK is an actual real-time software modulator developed by Michael Feilen. The software is very comprehensive and a free (non commercial) version is available on request from the author.

This software offers numerous possibilities and supports all code rates, bandwidths and robustness modes.

A comprehensive documentation is also available.

Besides pure audio transmission basing e.g. on a WAVE file source additional transmission of text & image files is also possible. There is also a commercial version with additional features available.

2. PC

A PC or notebook equipped with a standard (AC 97) sound card allows the generation of a DRM signal.

A low-frequency DRM Baseband signal is available at the line output of the sound card as OFDM (Orthogonal Frequency Division Multiplex) signal.

The standard center frequency of the OFDM signal is 12KHz.

3. DiRaGen 30

The sound card OFDM signal is connected to the audio/IF input and converted in the shortwave range.

Any output frequency can be selected within 130KHz to 30MHz directly via the integrated keyboard. The last selected frequency is stored automatically and permanently visible at the front display.

What` s included ?

DiRaBox DRB 32

Please note: Plug-Power Supply, application software and connecting cables are not included !

Premium Edition:

Selected DiRaGen 30 with DRM-SNR >45dB guaranteed
Please ask for availability !

Highest linearity and easy to operate

In order to achieve the highest possible signal-to-noise ratio (SNR) the conversion must be absolutely linear. Overloading or compression degrades the SNR severely.

The DiRaGen has an easy-to-read integrated overload control (red LED) at the rear panel. Adjust the PC volume (audio level) control settings until the LED starts just to flicker. This is the optimum level to reach the highest possible SNR.

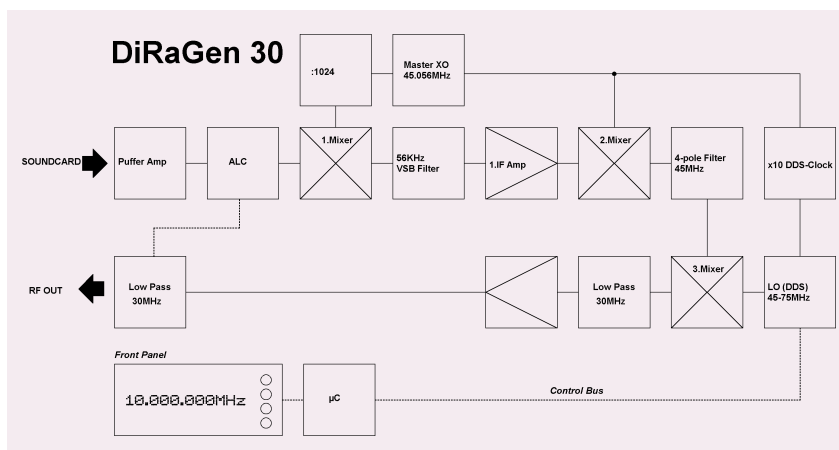
Due to a high performance design with triple frequency conversion in combination with efficient filtering very good unwanted sideband rejection and carrier suppression values are achieved.

All internal frequencies are derived from a stable crystal clock generator (master clock) to prevent odd frequency drifting effects.

A Direct Digital Synthesizer (DDS) acts as VCO combining good phase-noise and short time stability. We use this reliable principle already for our PC-controlled shortwave receivers.

Please note. In case of further amplification of the RF output signal additional selective filters must be inserted.

Furthermore the legal regulations have to be regarded.



Technical Data

Tuning Range: 130KHz - 30MHz (continous)

Smallest Tuning Step: 1Hz

RF Output Connector / Impedance: BNC socket / 50Ohms

Output Level: -10dBm eff. +/- 3dB typ. (thermal measurement)

Audio / IF Input Level: 0.1Vss @ 1KOhm via 3.5mm stereo phone jack socket

DRM Output SNR: >40dB, typ. 45dB (mean value / measured via SoDiRa 072 & DREAM Transmitter)

Unwanted Sideband Suppression (-112KHz): > 60dB

Carrier Suppression (-56KHz): >50dB (0.5 - 27MHz); typ. 65dB

HarmonicsSuppressions: 0-30MHz >40dB; over 30MHz >60dB

Spurious Signals Suppression (0-30MHz): >35dB

Frequency Stability (15min. warm-up period): +/- 1ppm typ. (20°C)

Max. Baseband Bandwidth (Audio/IF): 15KHz @12KHz IF center frequency

Power Supply / Connector: 12 - 15V DC max. 250mA / 2.1mm DC power socket (positive inner)

Operating Temperature: 0 - 40°C

Dimensions / Weight: 125 x 71 x 31mm / 0.20kg