

FlexRadio Systems

Software Defined Radios

SDR-1000™

SDR-1000™
2007 Datasheet

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SDR-1000 SPECIFICATIONS



DSP and other software functions controlled by PowerSDR

IP3 @ 2 KHz spacing better than +26 dB

Two Tone, Third Order Dynamic Range >90 dB

MDS -130 dBm (pre=high)

Low Phase Noise, High Frequency DDS Clock

160-6 meter all mode transceiver

11 KHz to 65 MHz general coverage receiver

Maximum Receive Bandwidth 192 KHz

100 Watt PEP output on 160 to 10 meters (40 watts continuous duty)

13.5 VDC @ 25A (max) power consumption

Physical Dimensions:
10"W x 9.5"D x 4.5"H
24.1cm x 25.4cm x 11.4cm

Audio Interfaces:
I/Q Line Out, I/Q Line In & Microphone In and Output

Control Interface: 25-pin DB25 parallel interface (IEEE-1284) (5v required)

The SDR-1000 Software Defined Radio

Software Defined Radio (SDR) is a collection of hardware and software technologies that enable reconfigurable system architectures for wireless communications. SDR provides an efficient and comparatively inexpensive solution to the problem of building multi-mode, multi-band, multi-functional communications devices that can be enhanced using software upgrades.

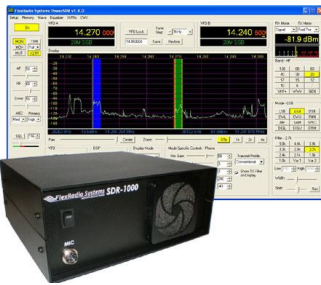
The SDR-1000™ from FlexRadio Systems is the hardware component of a complete Software Defined Radio (SDR) transceiver interface to a Windows Personal Computer. It provides everything needed to convert a PC into a high performance, 11KHz-65MHz general coverage receiver with 160M-6M (2M optional) Amateur Radio band transmit capability.

The SDR-1000™ incorporates a novel **Quadrature Sampling Detector (QSD)** to provide high dynamic range with minimal components. An Analog Devices AD9854 quadrature DDS and 200MHz 1ps jitter clock oscillator provides continuous coverage with very low phase noise. The SDR-1000™ delivers 100W PEP (40w continuous) on the 160-10m (50W 60m) HF bands with the optional SDR-100WPA linear amplifier.

The combination of the QSD and DSP digital signal processing produces a transceiver that has superior performance over conventional radios and easily upgraded with new software features provided at no additional cost. Receiver dynamic range and selectivity are in the top performance class of all amateur radio transceivers.

"The debut of the FlexRadio SDR-1000™ opens a new chapter in the history of Amateur Radio. I'm not indulging in hyperbole by making such a statement – it is a fact. For the first time in ham history, you can purchase 'off the shelf' an HF and 6 meter transceiver that uses software to define its functionality – a software defined radio."

QST Editor, Steve Ford



SDR-1000 ACCESSORIES

SDR-1000 ATU Automatic
Tuning Unit

DEMI144-28FRS 2 Meter
Transverter

ShuttlePro Rig Controller

Griffin PowerMate VFO
Control

*"...the TT30 IMD
dynamic range was
greater than 99 dB on 14
MHz, about as good as
we've ever seen..."*
QST October 2005

*I have put my Orion II up
for sale. The SDR-
1000™ is so much better
and easier to use - I am
so HAPPY !!*
Dave, G3RCQ

*The key thing to me is
that you can hear and
work people others
can't! This is because
the rig is very sensitive
and selective. Strong
adjacent signals cause
far less interference.*
Julius, W2IHY

The First Truly Open Source Defined Amateur Radio Transceiver

The SDR-1000™ Software Defined Radio (SDR) is a radio whose modulation waveforms are completely defined in software. Traditional analog radios are fixed in capability for all time. Since all of their functionality is hard wired into the radio, there is little ability to upgrade. Many modern radios add proprietary digital signal processing (DSP) chips to traditional analog radio architectures to provide signal-processing functions with limited or no capability of upgrade.

The FlexRadio SDR-1000™ is the first *open source* software, amateur radio transceiver to incorporate the scalable DSP performance of a personal computer (PC) and sound card to perform all modulation, demodulation, and control functions of the radio. The general purpose PC architecture now vastly outperforms even the best proprietary DSP chips, with cost/performance constantly improving. In addition, the professional audio market is driving significant improvements in sound card technology. The SDR-1000™ takes advantage of these trends to provide upgradeable hardware and software performance.

Nearly Everything is Done in Software

PowerSDR™ is the full featured control software provides 100% of the signal processing and control for the SDR-1000™. A free [download](#) makes available the latest new features and performance improvements. GPL open source licensing allows many users to contribute to the radio's enhancement. On the other hand, NO software programming knowledge is required to operate and enjoy the radio.

Some of the features of PowerSDR™

- Real-time Panadapter and Waterfall Spectrum Displays of the passband
- User defined "On the Fly" drag and set Filter Setting
- Brick wall filters down to 25 Hz with no ringing
- Zero beat click tuning of signals in the Panadapter
- Advanced digital AGC performed after the filter
- DSP Noise Reduction, Noise Blanking (2) and Notch Filter
- Digital EQ, Compression, Compander and variable transmit bandwidth filters for the ultimate SSB and AM experience
- Integrated CAT for use with any logging or contest software
- Built-in Iambic keyer and automatic zero beat for CW
- Full Split operation with MultiRX makes working DX a breeze
- All mode (SSB, CW, AM, FM, SAM & DRM) with multiple bandstack registers and memories