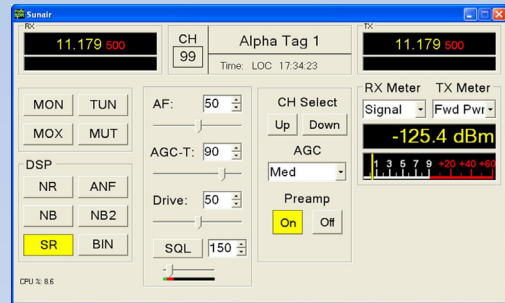




RT-8100 Software Defined, Computer Controlled High Performance HF Transceiver



- TRUE SOFTWARE DEFINED RADIO
- SELECTABLE AGC & IF BANDWIDTHS
- INTEGRAL TOUCH SCREEN CONTROL
- AUDIO RECORDER BUILT IN
- LOCAL CONTROL VIA TOUCH SCREEN
- REMOTE CONTROL OVER INTERNET
- SELECTABLE USER INTERFACE SCREEN
- PROGRAMMABLE OPERATOR OPTIONS
- 99 PROGRAMMABLE CHANNELS
- INTERNAL AC POWER SUPPLY(OPT)
- 13.8 VDC EXTERNAL POWER
- CE CERTIFICATION

Software Defined Radio (SDR) is as important to 21st century radio communications as the superheterodyne was to the 20th century radio. Simply put, SDR moves radio design from dedicated analog-based circuit hardware to software configurable digital data processing. This shift allows signal manipulation to be performed as pure complex math transforms. In theory and in reality, an SDR radio can be operationally flexible by just loading new math functions without new hardware. From a single channel to a spread spectrum. The RT-8100 digitizes the RF signal right from the antenna to the speaker. All key functions of the transceiver, including frequency range, frequency agility, mode of operation, modulation methods, and display, are totally software controllable and definable. Hardware is independent of system-level programming methodologies.

The RT-8100 very high performance Software Defined Radio transceiver controls all I/O data and hardware over a single FireWire® (IEEE-1394) connection to an internal computer. The RT-8100 incorporates a high performance fully software defined receiver. Close-in dynamic range is the most useful specification to evaluate a receiver's performance. Receiving narrow bandwidth signals under crowded conditions is where good receivers are separated from the best receivers. Many manufacturer's do not publish 2 kHz two-tone, third-order dynamic range values. It is easier to get higher value numbers at 20 kHz that are not that applicable to real world HF operating conditions. The RT-8100 at 2 kHz spacing, exceeds competitor's performance by as much as 2-25 dB.

Third Order Intercept (IP³) is a valuable number to measure receiver performance. This specification is not an actual measured number; it is calculated from two other parameters. The IP³ value can vary dramatically based on the tone spacing used to make measurements. Some manufacturers publish wide-spaced (20 kHz) IP³ values of +40 dBm, but do not specify close-in IP³ values. Why? This is because performance degrades dramatically inside expensive roofing filters. The RT-8100 takes a different approach, the receiver is designed to handle large signals at any spacing. This means that IP³ and third order dynamic range will not degrade as tone spacing (even at 100 Hz) is decreased. In practical terms, that means the operator can recover a very weak signal inter-dispersed between higher power signals.

The RT-8100 embedded motherboard utilizes a high performance Intel Core™ 2 Duo x86 processor built inside the chassis. All of the necessary RF and computer hardware required is packaged in one enclosure. The embedded Intel Core™ 2 Duo motherboard uses the Windows XP Pro operating system. The RT-8100 utilizes Intel's Embedded Graphics Drivers to provide support for high resolution external monitors and dual-display configurations. With the dual-display configuration, multiple monitors in either TWIN (both monitors have the same timings) or CLONE (monitors have different timing) modes for unsurpassed flexibility.

An internal AC power supply (optional) is optimized to minimize the undesirable RFI and EMC effects. The radio accommodates operation on either an AC source or 13.8 VDC input via separate connectors. Enhanced operating features are available such as narrow band FM, 1.5 MHz lower transmit limit, 10 kHz lower receive limit and 1 Hz tuning.

Put a true 21st century performer to work solving your tough HF radio requirements in today's crowded spectrum. Enjoy total technical flexibility as you have never before experienced in high frequency radio.



RT-8100

Software Defined High Performance HF Transceiver

Product Specifications

GENERAL

FREQUENCY RANGE: TX: 1.5 to 60 MHz
 RX: 100 kHz to 60 MHz
PROGRAMMABLE CHANNELS: 99 Simplex or half-duplex
FREQUENCY STEP: 1 Hz
FREQUENCY STABILITY: ±0.5 ppm (0 C - 50 C)
MODES OF OPERATION: DSB, USB, LSB, AM, CW, FM, DATA (with external modems)
MEMORY RETENTION: Non-volatile
SCAN: Manual or Automatic
BFO: ±1.99 kHz, 10 Hz resolution
SYNTHESIZER LOCK: 10 ms
T/R SWITCHING TIME: 10 ms
REMOTE INTERFACE: RJ-45
RF INPUT / OUTPUT IMPEDANCE: 50 ohms nominal, unbalanced.
BITE: Fault isolated to module level (LRU), fault isolation through BITE routines which are operator / maintainer invoked.
INPUT POWER: DC: 13.8 V DC±15%
 AC: 115/230 VAC 15%,47-400Hz (w/ optional PS)
DIMENSIONS: INCHES (CM): 5.96" H (15.2) x 17.83" W (45.4) x 17.66" L (44.9)
WEIGHT: 13 LBS (5.91 KG)
CONSTRUCTION: Modular plug-in assemblies.

ENVIRONMENTAL

TEMPERATURE: -0°C to +50°C operating
 -20°C to +65°C storage
HUMIDITY: 95% at 50°C
MTBF / MTTR: 6,500h / 30min (calculated)

RECEIVER

IF B/W 6.6 kHz -6/-60 6.60/6.74 86 dB Noise
 IF B/W 2.4 kHz -6/-60 2.39/2.54 90 dB Noise
 IF B/W 500 Hz -6/-60 500/640 98 dB Noise

FIRST IF REJECTION @ +/-18kHz: 90 dB
DYNAMIC RANGE 20 kHz: 96 dB IP3 +39 dBm
DYNAMIC RANGE 2 kHz: 96 dB IP3 +39 dBm
BLOCKING: Above noise floor@100 kHz spacing / 1 uV signal +123 db
PHASE NOISE: (normalized) @ 10kHz spacing, 123 (flat) dBc
NOISE FLOOR: SSB@ 10 MHz -128 dBm
 CW@10MHz -135 dBm

SENSITIVITY: @10 MHz < 0.25 uV
AGC THRESHOLD: @ -3db (Preamp off & on) 2.0 / 0.5 uV (var)
DRIFT: 1 Hz or less
NOTCH FILTER: 35 dB
PREAMP GAIN: 16 dB
SQUELCH: Software controlled syllabic
INTERNAL GENERATED SPURIOUS: 99.5% of the available frequencies from 100 kHz to 30 MHz at or below 0.5 uV equivalent input at the antenna terminal.

TRANSMITTER

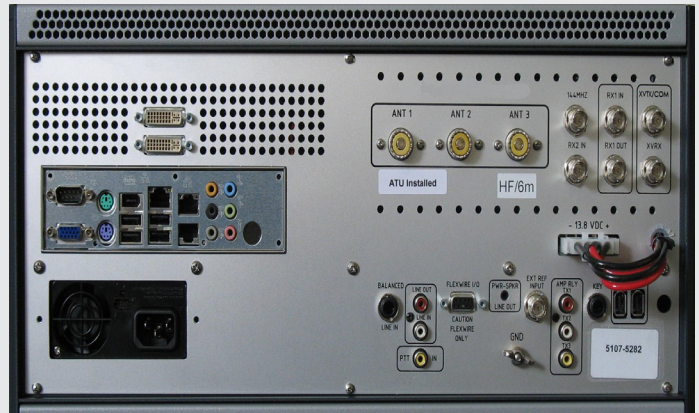
OUTPUT POWER:
NORMAL: SSB: 1 - 100 Watts PEP and average
 DSB: 1 - 100 Watts PEP
 CW: 1 - 100 Watts
 AME: 1 - 25 Watts carrier

HARMONIC RADIATION: Better than -55dB from 1.5 to 30 MHz
 Better than -65dB from 30 - 60 MHz

INTERMODULATION DISTORTION: 36 dB below PEP
CARRIER SUPPRESSION: 55 dB below PEP
UNDESIRABLE SIDEBAND: 55 dB below PEP @ 1 kHz
THIRD ORDER IMD: >33 dB below PEP at 14 MHz
VSWR: Operates at VSWR 2.0:1 (power reduction above 2.0:1)
AUDIO INPUT: Microphone and 600 Ohm balance
AUDIO RESPONSE: .01 dB - 10Hz - 20kHz

INTERNAL OPTIONS

Option: Internal Automatic Antenna Coupler Module
Option: Internal AC power supply module (shown installed below)



This device is not type accepted by the FCC.

Due to Sunair's policy of continuous product improvement specifications are subject to change without notice or obligation.

Designed & manufactured in the U.S.A.



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