WiNRADiO®

AVENTAS INC

Embedded Computing, Timing and Telemetry Products

WR-G33EM Marine Receiver

The WiNRADiO WR-G33EM is a high-performance receiver specially developed for marine applications. It covers the HF frequency range to 30 MHz, and contains a number of decoding facilities including HF Fax, NAVTEX, DSC and TELEX, as well as classical AM, SSB and CW radio modes.

A GPS option is also available which integrates the receiver with a high-resolution global mapping facility.

This high-performance marine receiver is extremely sensitive and optimized to work with relatively short antennas, typically found in a marine environment, yet featuring a respectable dynamic range making the receiver resistant to strong signal overload.

The receiver comes in a small enclosure which connects to an IBM-compatible PC (desktop or laptop) via the supplied USB cable. An external antenna connects to the receiver.

- Frequency range 9kHz to 30MHz
- AM, LSB, USB, DSB, CW conventional modes
- DSC, HF Fax, NAVTEX, TELEX marine modes
- High sensitivity
- Excellent dynamic range
- Real-time spectrum analyzer
- Spot-on tuning in 1Hz steps
- Continuously variable bandwidth
- Automatic scheduling, recording and playback
- GPS option

The ***WiNRADiO G33EM***: A ground-breaking marine receiver that will surely amaze you.

Software Defined Radio

The WR-G33EM is the first Software Defined Radio specifically designed for marine applications.

A Software Defined Radio (SDR) is one where most of the radio signal processing is performed in software, using digital signal processing methods, rather than using traditional hardware parts, resistors, capacitors, diodes, etc. The received signal is digitized early in the signal processing chain, and any further processing, demodulation and decoding of the digitized signal is then performed entirely in software.

There are many advantages to this approach, especially the flexibility of demodulation modes - new modes can be added easily by simply upgrading software. The G33EM also performs better than a comparable conventional receiver, thanks to advanced signal processing techniques which make it possible to implement sharper selectivity filters, and more accurate demodulators and decoders than conventional hardware.

The performance of a Software Defined Radio receiver is also more consistent, stable and reliable because component tolerances and aging do not play such an important role as in a conventional receiver.

And finally, the G33EM receiver offers far more features and facilities than a conventional receiver. For example, the real-time spectrum analyzer with continuously variable bandwidth, graphical notch filter and IF recording are some of the many features which were previously unavailable on a conventional marine radio, in particular at such an affordable price level.

Technical Specifications

Receiver type	DDS-based dual-conversion superheterodyne with software-defined last IF stage and demodulator
Frequency range	9 kHz - 30 MHz
Tuning resolution	1 Hz
Mode	AM, LSB, USB, DSB, CW DSC, NAVTEX, HF FAX, TELEX
Spurious-free Dynamic Range	93 dB
Image Rejection	60 dB
RSSI accuracy	5 dB
RSSI sensitivity	1 µV
Selectivity	Continuously adjustable 100-15000 Hz
Sensitivity (10dB S+N/N)	Mode / 0.1-0.5 MHz / 0.5-2.0 MHz / 2.0-30 MHz AM* / 2.0µV / 0.5µV / 0.4µV LSB, USB / 0.7µV / 0.3µV / 0.2µV CW / 0.3µV / 0.2µV / 0.1µV ** 80% modulation*
Intermediate frequencies	IF1: 45 MHz IF2: 12 kHz
Frequency stability	10 ppm (0 to 60° C)
Antenna input	50 ohm (SMA connector)
Output	USB (1.0 and 2.0 compatible)
Dimensions	Length: 164 mm (6.46") Width: 96 mm (3.78") Height: 41 mm (1.61")
Weight	467 g (16.40 oz)

What's included?

The standard WR-G33EM package includes:

- WR-G33EM receiver
- Application software
- Comprehensive user's manual
- Start-up test antenna
- BNC-to-SMA adapter
- USB interface cable
- Low-noise AC/DC linear power supply
- Fused fly lead for alternative DC power

System requirements:

- PC with 500 MHz Pentium CPU or faster
- One free USB socket
- Windows 98/ME/2000/XP

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