

# WR-G33EM

## High Performance Software-Defined PC-based Marine Receiver

- 9 kHz - 30 MHz frequency range
- DSC, HF Fax, NAVTEX, TELEX marine modes
- AM, LSB, USB, DSB and CW standard modes
- Very high sensitivity
- Excellent dynamic range
- Real-time spectrum analyzer
- Accurate tuning in 1Hz steps
- Continuously variable bandwidth
- Automatic scheduling, recording and playback
- USB interface
- GPS option

With digital navigational and communication technology steadily moving to the realm of marine applications, radio receiving technology has been lagging behind. This is about to change with the arrival of a breakthrough, the WiNRADiO WR-G33EM Marine Receiver.



*WR-G33EM receiver controlled by a laptop*

The WiNRADiO WR-G33EM is a computer-interfaced high-performance digital radio receiver specially developed for marine applications. It covers a frequency range from 9 kHz to 30 MHz, and contains a number of marine-specific decoding facilities including HF Fax, NAVTEX, DSC and TELEX, as well as classical AM, SSB and CW modes.



The WR-G33EM 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.

All decoding functions are seamlessly integrated within the elegant and easy-to-use graphical user interface.

Switching from classical AM or SSB modulations to receiving DSC, HF Fax, NAVTEX or TELEX messages is just one mouse click away.



**WiNRADiO**<sup>®</sup>  
COMMUNICATIONS

[www.winradio.com](http://www.winradio.com)

## Hardware

The construction of the WINRADIO WR-G33EM receiver is truly ground breaking and innovative: The remarkably compact receiver connects to the computer via a standard USB interface which facilitates the receiver control as well as transfer of the demodulated and decoded signal. The enclosure is very well shielded against interference, making it possible for the receiver to operate in a noisy computer environment.



The receiver is supplied with an external AC/DC power adapter, working in linear mode to avoid even the slightest possibility of interference emanating from the power supply.

## Software

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.

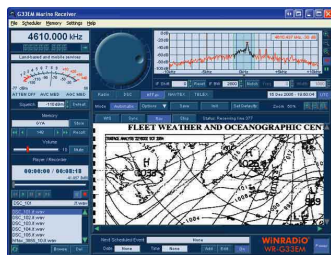
There are many advantages to this approach, especially the flexibility of demodulation modes - new modes can be easily added by simply upgrading software. The WR-G33EM also performs better than a comparable conventional receiver, thanks to advanced signal processing techniques which make it possible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



TELEX (RTTY)



HF Fax



NAVTEX



DSC

## Options

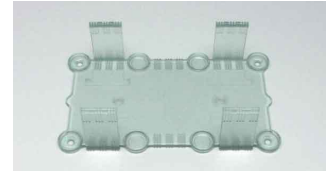
### WR-G3E-GPS

This option is an integrated GPS receiver and antenna, with USB interface. When combined with the WR-G33EM receiver, it provides a continuous position display, super-imposed on a zoomable high-resolution map of the world.



### WR-G3E-WMB

A wall-mount bracket makes it possible to mount the WR-G33EM receiver to a wall or under a desk, thus saving space. An elegant and useful accessory.



Consult our web site [www.winradio.com](http://www.winradio.com) for a wide range of antenna options available for this receiver.

## Specifications

<b>Receiver type</b>	DDS-based dual-conversion superheterodyne with software-defined last IF stage and demodulator
<b>Frequency range</b>	9 kHz - 30 MHz
<b>Tuning resolution</b>	1 Hz
<b>Mode</b>	AM, LSB, USB, DSB, CW standard modes DSC, HF Fax, NAVTEX, TELEX marine modes
<b>Image rejection</b>	60dB
<b>Spurious-free dynamic range</b>	93dB
<b>RSSI accuracy</b>	5 dB
<b>RSSI sensitivity</b>	1 $\mu$ V
<b>Bandwidth</b>	100-15000 Hz

Sensitivity	Mode	0.1-0.5 MHz	0.5 -2.0 MHz	2.0 -30 MHz
(10 dB S+N/N)	AM*	2.0 $\mu$ V	0.5 $\mu$ V	0.4 $\mu$ V
	LSB, USB	0.7 $\mu$ V	0.3 $\mu$ V	0.4 $\mu$ V
	CW	0.3 $\mu$ V	0.2 $\mu$ V	0.1 $\mu$ V

\* 80% modulation

<b>Intermediate frequencies</b>	IF1: 45 MHz, IF2: 12 kHz
<b>Frequency stability</b>	10 ppm (0 to 60°C)
<b>Antenna input</b>	50 ohm (SMA connector)
<b>Interface</b>	USB 1.0 and 2.0 compatible
<b>Dimensions</b>	Length: 164 mm (6.46") Width: 96 mm (3.78") Height: 41 mm (1.61")
<b>Weight</b>	467 g (16.40 oz)
<b>System requirements</b>	IBM PC compatible (CPU 500MHz or higher, USB port), Windows 98/ME/2000/XP

Specifications are subject to change without notice due to continuous product development.

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