

# WR-G305e

## Software-Defined VHF/UHF Receiver

- 9 kHz-1800 MHz frequency range  
(except cellular bands where required by law)
- Optional 3300 MHz downconverter
- Tracking front-end filters
- Dual-loop AGC and AFC
- Software-defined demodulation
- Excellent sensitivity
- Fast scanning speed
- Multiple squelch modes
- Real-time spectrum analyzer
- Powerful software features
- USB interface (serial optional)
- Plug and Play installation

The WiNRADiO WR-G305e is the first software-defined VHF/UHF scanning receiver with a USB interface.

In a software-defined receiver, the entire last intermediate frequency stage and an all-mode demodulator are implemented entirely in signal-processing software running on a personal computer. This brings about significant advantages: performance, flexibility, configurability, reliability and convenience. There is also a reduced risk of obsolescence, as new demodulators for new types of digital modulations can be added by simply upgrading the software.



The receiver is constructed to be especially resistant to computer-generated noise, comes in an elegant enclosure which connects to the USB port (serial interface is optional) and installs in minutes. Just plug the receiver in, install the supplied software and let this innovative receiver surprise you with its performance and amazing new features.

The WiNRADiO WR-G305e receiver is designed for demanding applications where the ability to locate even the weakest signals in background noise and extract the cleanest possible audio is important.

The numerous types of squelch, scanning modes and high scanning speed make this receiver a highly flexible and versatile scanner, eminently suitable for demanding VHF/UHF monitoring tasks. Its advanced software features and extensive multi-level software support provide the G305e receiver's user with an excellent communications intercept and experimentation tool of choice.

The WiNRADiO WR-G305e receiver's high sensitivity, very low phase noise and flat-passband internal filtering make it also ready for exploring modern digital modulations.

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## Hardware

The construction of the WinRADIO WR-G305e receiver is truly ground breaking and innovative. The remarkably compact receiver connects to the computer using a universal connector which contains USB, serial and IF outputs. 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-G305e receiver front panel contains numerous unique features, as well as conventional displays and controls. There are many alternative tuning methods, three scanning modes, automatic step size selection and a truly remarkable S-meter which can show values in S-units, dBm or microvolts. There is a dual-loop AGC with selectable reaction speeds, as well as manual IF gain control. Memory is limited only by the capacity of your hard drive. An audio filter shapes the demodulated signal to your listening preferences.

There are also two spectrum scopes, invaluable in determining activity on the band and normally found only on much more expensive equipment. A multiple-parameter squelch and a graphical hit-counter are also included in the arsenal of this very powerful and flexible scanner.



## Demodulators

The standard supplied demodulator provides the performance of a highly respectable scanner with more features than a conventional scanning receiver would typically provide, even synchronous AM demodulation and high-resolution real-time spectrum scope.

The optional Professional Demodulator provides even more: graphically and continuously adjustable IF filter (in 1Hz increments), user-definable audio filter, interactive block diagrams with two additional audio spectrum scopes, additional demodulation modes and even various built-in test and measurement facilities normally only available in expensive communication test equipment.



## Options

### Serial Interface Option

The WinRADIO WR-G305e receiver comes with a USB cable as standard. The serial interface is supplied as an optional extra. When using the USB interface, the signal is digitized inside the receiver and transferred via the USB cable. If the serial interface option is used, the receiver relies on the PC sound card to digitize the signal.



### Wide-FM Demodulator Option

The Wide-FM Option provides a separate wide-FM demodulator. The wide-FM demodulation is performed in hardware, using conventional hardware-based demodulation techniques, in order to ease the requirement of PC processing power which would otherwise be required for a signal of this bandwidth. In other words, the Wide-FM Option is an entirely separate receiver in its own right.

### Other Options

In addition to the Professional Demodulator, there are other software options available for this receiver, for example various digital demodulation and decoding options. There are also many hardware options to suit various applications. Please visit our Web site [www.winradio.com](http://www.winradio.com) for the latest of the available options.

## Specifications

<b>Receiver type</b>	DDS-based dual-conversion superheterodyne with software-defined last IF stage and demodulator		
<b>Frequency range</b>	9 kHz -1800 MHz		
<b>Tuning resolution</b>	1 Hz		
<b>Mode</b> (See Note 1.)	AM, AMN, AMS, LSB, USB, CW, FM6, FMN (FMW optional)		
<b>Image/Spurious rejection</b>	60 dB		
<b>IP3</b>	0 dBm @ 20 kHz		
<b>MDS</b>	-135 dBm		
<b>Phase noise</b>	-148 dBc/Hz @ 100 kHz		
<b>RSSI accuracy</b>	5 dB		
<b>RSSI sensitivity</b>	1 µV		
<b>Squelch modes</b>	Level, Noise, Voice, CTCSS, DCS		
<b>Scanning modes</b>	Direct, Range, Memory		
<b>Scanning speed</b>	max 60 channels/s (may depend on CPU)		
<b>Intermediate frequencies</b>	IF1: 109.65 MHz IF2: 12 kHz		
<b>Frequency stability</b>	10 ppm (0 to 60° C)		
<b>Antenna input</b>	50 ohm (SMA connector)		
<b>Selectivity (-6dB)</b> (See Note 2.)			
AM	6 kHz		
AMN	4 kHz		
AMS	4 kHz		
LSB, USB	2.5 kHz		
CW	500 Hz		
FM6	6 kHz		
FMN	12 kHz		
FMW	230 kHz (optional)		
<b>Sensitivity</b>	<b>Mode</b>	<b>0.15-500 MHz</b>	<b>500-1800 MHz</b>
(AM/SSB/CW 10dB S/N) (FM 12dB SINAD)  (See Note 3.)	AM, AMS	1.7µV	1.85µV
	LSB, USB	0.35µV	0.37µV
	CW	0.2µV	0.25µV
	FM6, FMN	0.7µV	0.8µV
	FMW (optional)	2.0µV	2.0µV
<b>Interface type</b>	USB 1.0 and 2.0 compatible		
<b>Dimensions</b>	166 x 97 x 41 mm (6.5" x 3.8" x 1.6")		
<b>Weight</b>	420 g (14.8 oz)		

#### Notes:

1. The Professional Demodulator offers two additional demodulation modes, DSB and ISB.
2. The Professional Demodulator offers continuously adjustable IF bandwidth from 100 to 15000 Hz.
3. The AM sensitivity is specified at 30% modulation for 10 dB S/N ratio. For 90% modulation, typical AM sensitivity of WR-G305e is 0.60 µV in 0.15-500 MHz range. The Professional Demodulator improves sensitivity further by making it possible to extend filter lengths, and adjust the IF bandwidth for optimum reception of the received signal. This results in a typical improvement by 2-3 dB on AM/SSB/FM and up to 10 dB on CW.

**System requirements** IBM PC compatible (CPU 500MHz or higher, USB or serial port), Sound Blaster 16 (or compatible sound card), Windows 98/ME/2000/XP

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