



Embedded Computing, Timing and Telemetry Products

WR-AMFE-Series Antenna Multiplexor and Frequency Extender

Overview

The WiNRADiO AMFE™ Antenna Multiplexor and Frequency Extender fulfills a dual role of an antenna switching unit and a frequency downconverter, making it possible to easily interface separate HF, VHF, UHF and SHF antennas to a wide-band receiver, as well as provide frequency downconversion for input signals up to 8599 MHz.

This device contains a high-stability local oscillator, mixer and various filters to convert an incoming UHF to SHF frequency down to an intermediate frequency 96-1800 MHz, which is then directly applied to the receiver's antenna. This can be used to extend the frequency range of VHF/UHF receivers to high UHF and SHF regions, both for WiNRADiO and third party products.

The local oscillator is stable enough for the downconverter to be usable even for narrow-band modulation modes, and has a low noise figure to be useful for high-end professional applications

The WiNRADiO AMFE™ Antenna Multiplexor and Frequency Extender is especially suitable for use with WiNRADiO G315 series VHF/UHF receivers (WR-G315i and WR-G315e), whereby it integrates fully transparently to the user, i.e. the frequency entry and display of these receivers automatically extend to 3500 or 8599 MHz (**WR-AMFE-3500** or **WR-AMFE-8600**, respectively), and the antenna switching is also automatic. Physically, the WR-AMFE unit stacks neatly under or above a WR-G315e receiver, providing a neat and elegant extension of its capabilities.

The 3500 MHz model (**AMFE-3500**) is specifically designed as an option for WiNRADiO WR-G315 receivers, while the 8599 MHz model (AMFE-8600) can be also used with other WiNRADiO receivers or any third party products (and controlled using the supplied software application.).

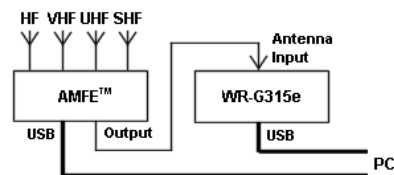
Unlike most simple downconverters, the WiNRADiO AMFE™ unit features a high-stability 0.5 ppm reference oscillator, to ensure excellent frequency stability at the output. An ultra-high stability reference oscillator (0.01 ppm OCXO) is also available as an option.



WiNRADiO AMFE™ stacked on top of the WR-G315e receiver

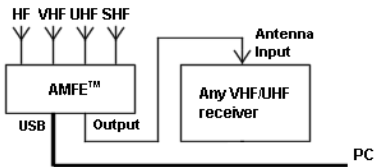
Features

- Input frequency range DC to 3500 (or 8599) MHz
- Output frequency range 96 to 1800 MHz
- High temperature stability
- High input insulation
- High dynamic range
- Low noise figure
- Simple installation
- Integrates with WR-G315e and WR-G315i receivers
- Suitable for any third-party receivers (AMFE-8600 only)
- Low-noise linear power supply included



The AMFE™ unit interfaces neatly with the WiNRADiO WR-G315i or WR-G315e receivers, where the software is able to recognize the AMFE™ unit and expand the ranges of the frequency input and display accordingly.

Switching between the antennas and tuning the local oscillator for the downconversion is accomplished automatically. The AMFE™ enclosure is also similar to that of the WR-G315e receiver and stacks neatly on top or under it.



The 8600 MHz version (**AMFE-8600**) can also be used with any other WinRADiO or third party receiver to provide a cost effective antenna switching and frequency conversion.

To take full advantage of the unit's capabilities, the receiver should have a minimum frequency range of 96 to 1800 MHz, otherwise there may be gaps in the frequency coverage of the SHF input (the antenna switching of the HF, VHF and UHF inputs does not apply any frequency conversion).

The complete WR-AMFE package includes:

- WR-AMFE unit
- CD ROM with [WR-AMFE application software](#)
- SMA-to-SMA cable
- USB interface cable
- AC/DC linear power supply
- Comprehensive user's manual

Technical Specifications	
Description	Antenna multiplexer and single-stage frequency downconverter
Input frequency range	HF input: 0.4 to 30 MHz
	VHF input: 30 to 100 MHz
	UHF input: 100 to 1800 MHz
	SHF input: 1796 to 3500 MHz (WR-AMFE-3500)
	1796 MHz to 8599 MHz (WR-AMFE-8600)
Output frequency range	96 to 1800 MHz (WR-AMFE-3500) DC to 1800 MHz (WR-AMFE-8600)

Gain	HF section: 0 to 3 dB
	VHF section: 5 to 7 dB
NF	UHF section: 1 to 5 dB
	SHF section: 10 to 12 dB (WR-AMFE-3500)
	-3 to 12 dB (WR-AMFE-8600)
	SHF section: 3 dB (AMFE-3500) 8 dB (AMFE-8600)
IIP1	HF section: +5 dBm
	VHF section: +2 dBm
	UHF section: +3 dBm
	SHF section: -15 dBm (AMFE-3500) -15 to 0 dBm (AMFE-8600)
Isolation Input/Input	HF, VHF: 60 dB min.
	UHF, SHF: 40 dB min.
	HF, UHF, UHF versus SHF: 30 dB min.
Isolation Input/Output	HF, VHF: 40 dB min.
	UHF, SHF: 30 dB min.
Mixer Spurious Rejection	Better than -40 dBc
LO leakage to IF	Better than -56 dBm
Connectors	5 x SMA Power jack OD=5.5mm ID=2.5mm (center positive)
LO stability	0.5 ppm (0 to 60°C)
	0.01ppm (0 to 60°C) with optional OCXO (AMFE-8600HS)
Power	12V DC ±10% @ 450 mA max
	12V DC ±10% @ 800 mA max with optional OCXO (AMFE-8600HS)
Interface	USB (1.0 and 2.0 compatible)
Dimensions	Length: 164 mm (6.46")
	Width: 96 mm (3.78")
	Height: 41 mm (1.61")
Weight	310 g (10.89 oz)

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



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