Falco Systems

WMA-02 DC - 13kHz HV amplifier

24V DC powered high voltage amplifier

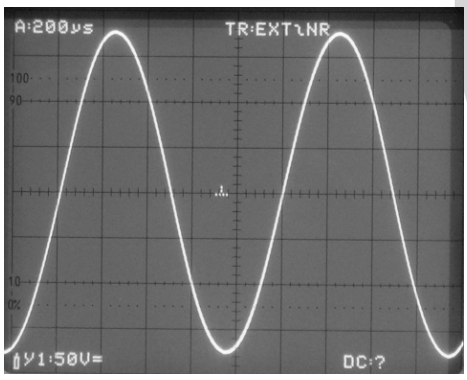
- -175V to +175V Output voltage
- DC to 13kHz @ -3dB large signal bandwidth
- Single power supply 24V DC, battery powered operation possible
- 50kΩ output impedance
- Stable with all capacitive loads, generates no overshoot
- Short-circuit protected output

The Falco Systems WMA-02 is a high voltage amplifier that runs from an 24V DC power supply and can be battery powered if required, e.g. for use in a Faraday cage. Its internal high voltage generator is inductor-free and hence does not spread magnetic interference in sensitive experimental setups. Its large voltage range makes it an excellent choice for use with MEMS devices, EO-modulators, piezo positioning systems, beam steering components, and many more.

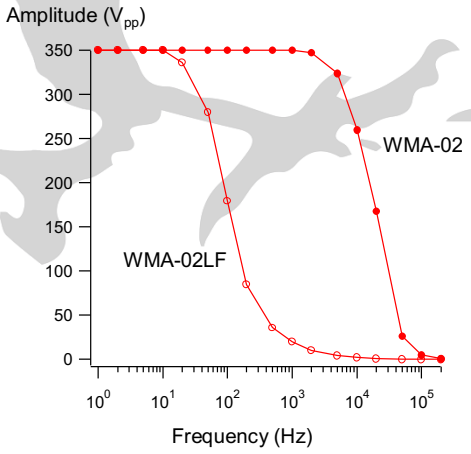
The amplifiers' full-power frequency response has a -3dB corner frequency at 13kHz. The input impedance is 100kΩ and the output 50kΩ.

The output noise of the WMA-02 is impressively low, at only 4mV$_{rms}$ in the DC - 13kHz full power bandwidth. For even lower noise applications where bandwidth is not an issue, the WMA-02LF amplifier contains an output low pass filter capacitor. This reduces the bandwidth to 50Hz, but makes the noise drop below 0.2mV$_{rms}$. The bandwidth-limited WMA-02LF is ideal for MEMS or piezo positioning with manual voltage adjustment requiring ultra-low noise.

The WMA-02 is long-term short-circuit proof. The input, output and DC power supply connections are all standard BNC.



Sine wave output signal 1kHz 350V$_{pp}$



Bandwidth of the WMA-02 and the WMA-02LF

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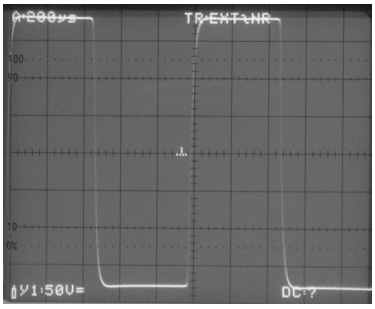
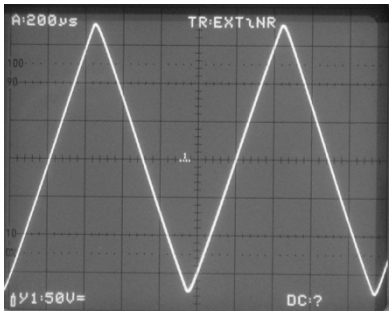


Full-power 1kHz square wave

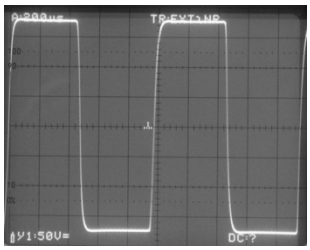


Triangle wave 1kHz 350V_{pp}

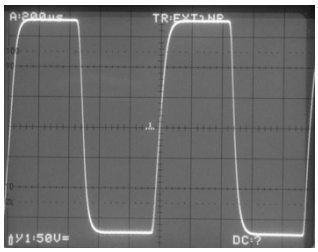
Technical specifications

Amplification: 20x, fixed
Output: -175V to +175V
Power supply: single 24V DC, 180mA, can be battery powered
Bandwidth WMA-02: DC - 13kHz
Bandwidth WMA-02LF: DC - 50Hz
Noise WMA-02: 4mV_{rms}, WMA-02LF: 0.2mV_{rms}
Stability: stable with all capacitive and resistive loads, no overshoot > 5%
Output impedance: 50kΩ
Dimensions: 50 x 100 x 26 mm excl. BNC's
Weight: 300g
Country of origin: The Netherlands

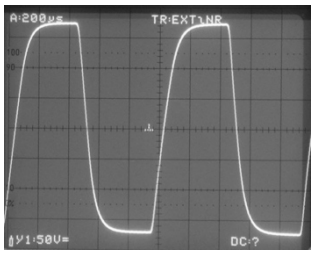
Specifications may be subject to change



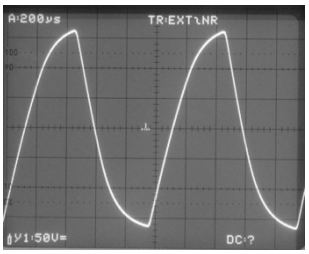
100pF



470pF



1nF



2.2nF

Effect of capacitive loading at 1kHz, 350Vpp

Falco Systems (established in 2006) is an innovative company that designs and manufactures technology leading high voltage amplifiers for company R&D departments, research institutes and universities worldwide. These amplifiers are used in e.g. precision engineering, electronics, physics, optics, chemistry, (aero-)space engineering and metrology and control.

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