



Ultra-low noise high voltage amplifier

- -175V to +175V Output voltage
- Ultra-low output noise: 50/20 μ V_{rms} in DC - 1MHz
- DC to 100kHz @ -3dB large signal bandwidth
- Current: 275mA with current limit
- Stable with all capacitive loads, generates no overshoot
- Short-circuit protected output

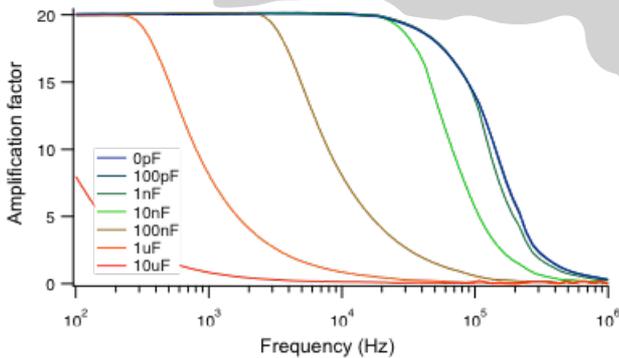


The Falco Systems WMA-200 model is a high quality, high voltage, linear laboratory amplifier optimized for experiments requiring world-class, ultra-low output noise. The amplifier will routinely enable sub-atomic positioning resolution with piezo positioning systems and MEMS devices, and is the ultimate ultra low noise driver for EO-modulators, (particle) beam steering, ultrasonics, dielectric studies, and for many other loads requiring a high voltage drive.

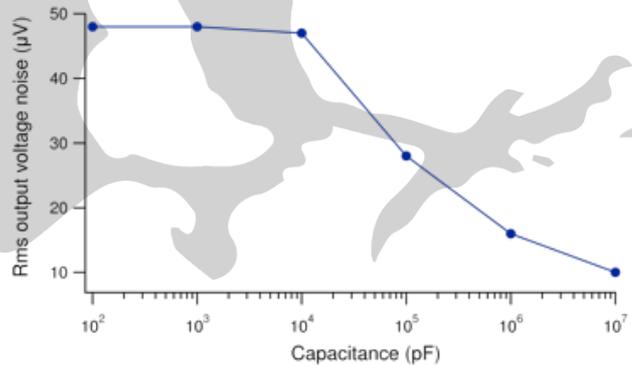
The output noise level of the high voltage amplifier is only ~50 μ V_{rms} with its standard large signal bandwidth of DC – 100kHz.

For even lower noise in experiments where this large bandwidth is not required, a capacitor load box is supplied with the amplifier. It cuts the bandwidth to DC – 500Hz, at the same time reducing the output noise level to an unprecedented ~20 μ V_{rms}.

The WMA-200 high voltage amplifier is designed to be fully stable and free of spurious signals with any capacitive load. The amplification is 20.0x (fixed, defined by 0.1% precision resistors). The short-circuit protection with fast current limit make this amplifier suitable for both normal daily laboratory use and automated measurement systems.



Frequency response 300V_{pp} as a function of capacitive load



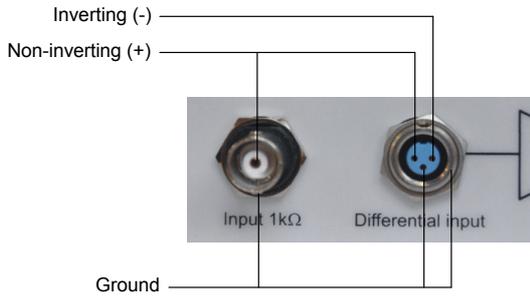
Rms output noise versus capacitive load



Falco Systems

WMA-200

50/20 μ V_{rms} HV amplifier

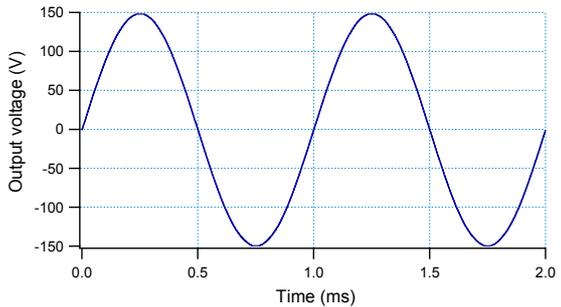


The input signal can be applied either via a conventional BNC connector, or using an interference-rejecting differential connector (mating connector is supplied)

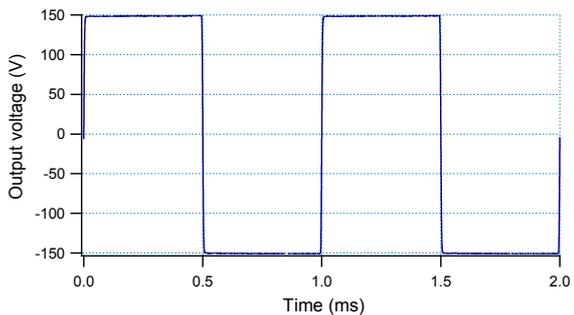
Technical specifications

Amplification: 20.0x, fixed
Bandwidth: DC – 100 kHz @ -3dB large signal bandwidth
50 μ V _{rms} output noise in DC - 1MHz typical without capacitor box, 20 μ V _{rms} with capacitor box connected to the output, 700 μ V DC offset typical
Output voltage: -175V to +175V
Current: 275mA typical with limiter
Input impedance: 1k Ω
Stability: stable with all capacitive and resistive loads, no overshoot > 5%
Power: 230V 50Hz AC, 140W or 115V 60 Hz AC, 140W
Dimensions: 52 x 165 x 300mm
Weight: 4.3kg
Country of origin: The Netherlands

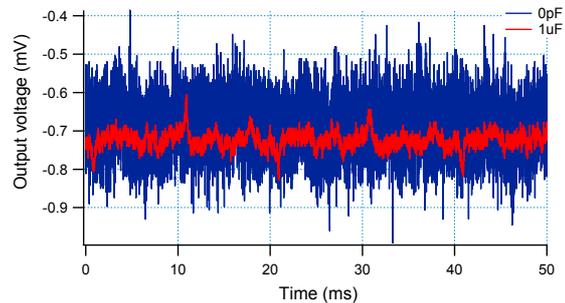
Specifications may be subject to change



300Vpp 1 kHz sine wave output



300Vpp 1kHz square wave output



Output noise voltage without load and with the 1 μ F load capacitor box connected



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.