

# Precision 200V High Speed Amplifier – Multi Gain EX200VMGF

## General Description

The Radiant Technologies EX200VMGF is a general purpose, low noise, high speed, high voltage amplifier capable of outputting +/-200Volts / 100mA at 30Khz.

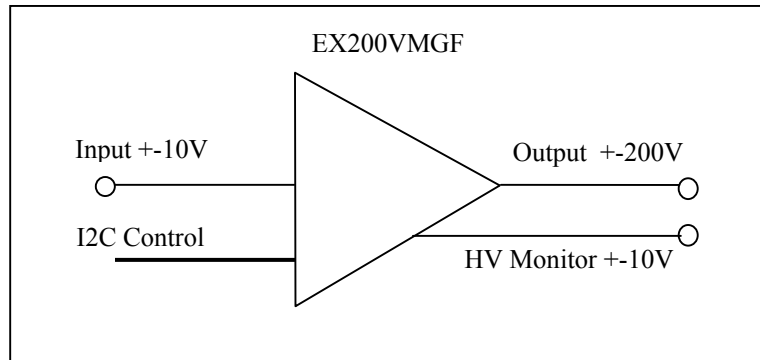
The amplifier can operate as a stand alone 20x gain amplifier, or can be controlled by I2C which allows remote power on/off control and selectable internal gain stages to increase signal to noise ratios in lower voltage measurements.

## Features

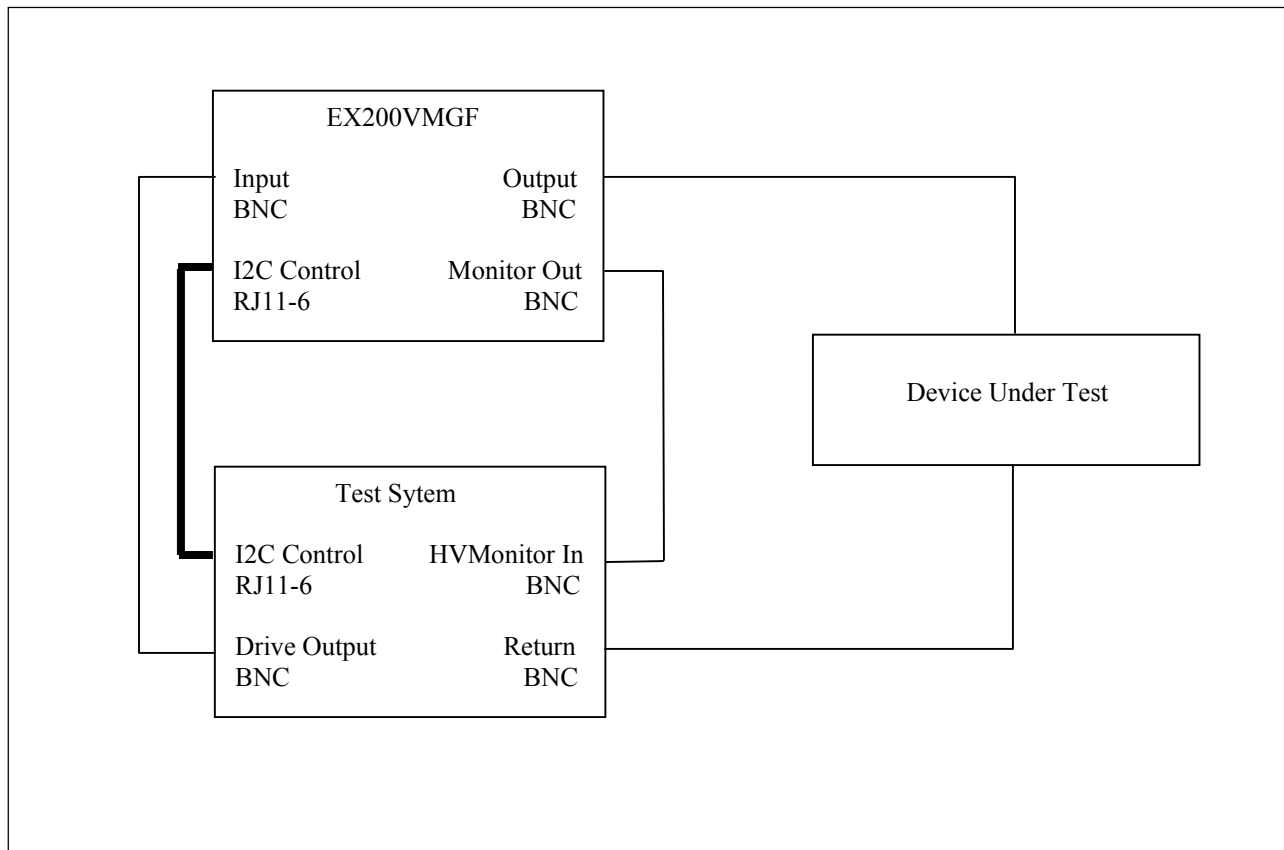
- Output voltage +/- 200V
- Output current +/- 100mA minimum
- Frequency response 30KHz
- Low noise 1Vp-p maximum
- Input signal 0V to +/-10V
- Over current / short circuit limited
- High Voltage monitor output
- Wide mains input 85-265VAC 50/60Hz



Functional Diagram



Typical Application



## Specifications

Mains Input Voltage	85-265VAC 50 / 60Hz single phase
Signal Input Voltage	+/-10V
Signal Input Impedance	500Kohms
Signal Bandwidth	30Khz
Output Signal Polarity	Inverting
Output Voltage	+/-200V
Output Current	+/-100mA
Output Impedance	51 ohms / 100pF
Output Noise and Ripple	1Vp-p
HV Monitor Output	+/-10V / 20Kohms / 22pF * varies with I2C controlled gain stages
Signal Input, Output, Monitor connections	BNC standard
Mains power input connector	IEC C14 standard 3 pin single phase
Over current protected	
Short circuit protected	
Dimensions	8.7 x 5.5 x 4.25 inches (220 x 140 x 108 mm)
Weight	3 lbs (1.4kg)
Operational Temperature Range	0 to +40 C
Storage Temperature Range	-20 to +60C

## Application Information

### Stand Alone 20x Gain Inverting Amplifier

In this mode, the amplifier powers on in its default configuration as a +/-200V, 20x gain inverting amp. Signal output from function generator should connect to INPUT connector. The amplifier inverts and multiplies this input by 20x on the OUTPUT connector. Signal input voltage is limited to +/-10V, which translates to +/-200V output.

### Monitor Output in Stand Alone Operation

The Monitor output divides the Output high voltage by 20 using a resistor divider network of 19.051K ohms / 1K ohms and 22pF output filter capacitor. Monitor output voltage is therefore +/-10 Volts. Care should be taken to not load the Monitor output so much as to receive inaccurate Monitor signal.

### I2C Controlled Variable Gain Inverting Amplifier

For improved signal to noise ratio and systems integration, the EX200VMGF amplifier can be controlled by I2C commands. In this mode, the I2C commands available are:

Power On / Off

1x Gain -- limited to +/-10V NON-Inverting output

5x Gain -- limited to +/-50V Inverting output

10x Gain -- limited to +/-100V Inverting

20x Gain -- +/-200V Inverting output

The amplifier defaults to power OFF when I2C is connected. The I2C controller must turn on the amplifier using the Power-On command.

The various gain stages allow better signal to noise ratios when using lower output voltages. Regardless of gain stage selected, the input signal should be +/-10V maximum.

I2C operation and control is described in the "I2C Control" section.

## Monitor Output in I2C Controlled Variable Gain Operation

The Monitor output changes impedance with gain stages.

- 1x Gain -- resistor divider network 51 ohms / 1K ohms 22pF
- 5x Gain -- resistor divider network 4.051K ohms / 1K ohms 22pF
- 10x Gain -- resistor divider network 9.051K ohms / 1K ohms 22pF
- 20x Gain -- resistor divider network 19.051K ohms / 1K ohms 22pF

