



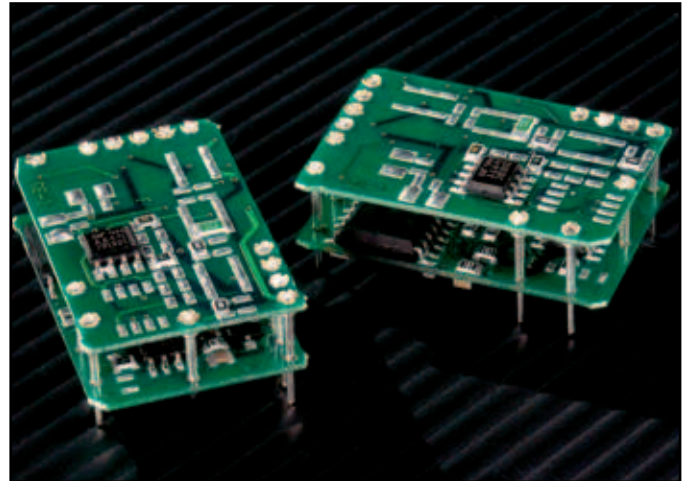
for FDI VME Boards

Programmable Amplifiers

Description

The PGA5 Series programmable amplifiers are digitally controlled gain modules that were designed for Frequency Devices' multi-channel VME board products to condition DC-coupled wide-band signals. They are programmed by an 8-bit serial data stream for gain selection using clock, data and strobe inputs.

Other standard performance features include differential input, single ended output, 5V interface logic and low noise/distortion. Available options include AC coupled input (all models) and/or differential output (VM32PA) only.



Features/Benefits:

- Phase match of $\pm 1.0^\circ$ for the PGA5-100 and $\pm 2.0^\circ$ for the PGA5-2.0 with Gain accuracy of ± 0.1 dB provides precision performance solutions to design engineers, system integrators and OEM's.
- Offers a low cost, versatile and convenient way to provide up to 32 channels of precision amplification in a single width B-size (6U) VME form factor.

Available Amplifier Options:

- VM32PA-PGA5-100** -12 dB to +60 dB in 6 dB steps for frequencies to 100 kHz
- VM32PA2.0-PGA5-2.0** -12 dB to +36 dB in 6 dB steps for frequencies to 2.0 MHz

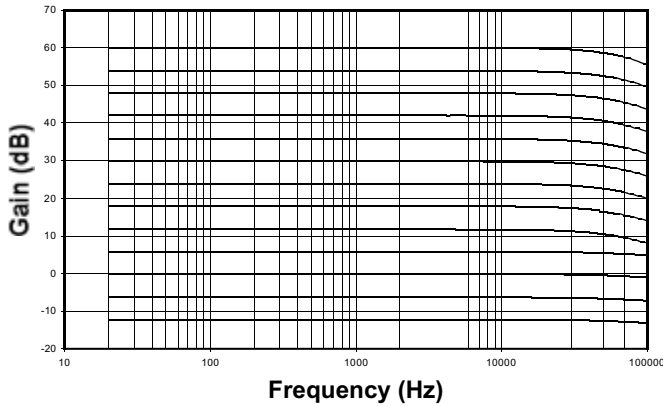


for FDI VME Boards

Programmable Amplifiers

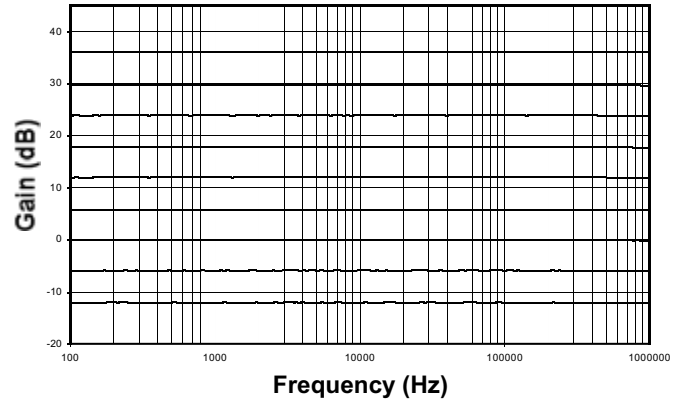
PGA5-100

Frequency Response

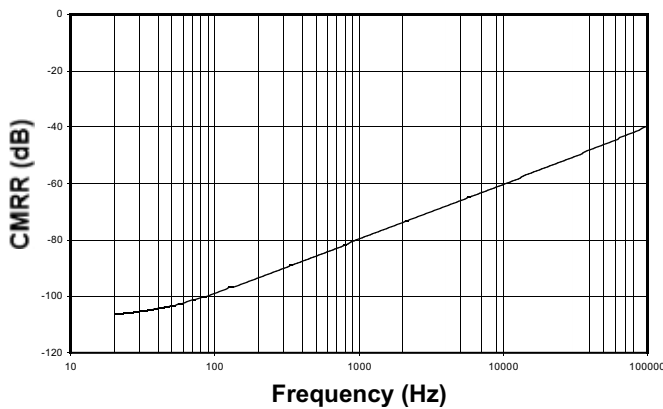


PGA5-2.0

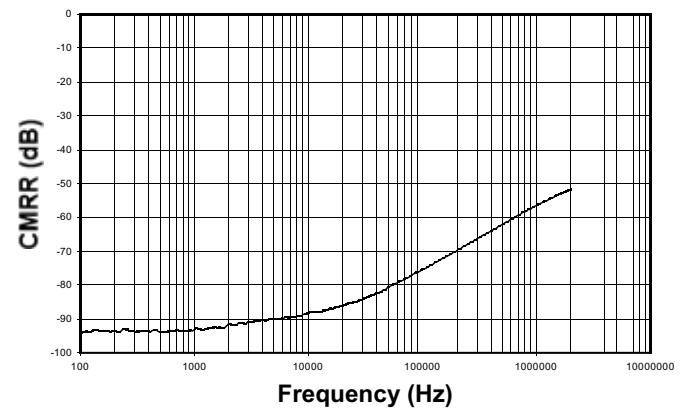
Frequency Response



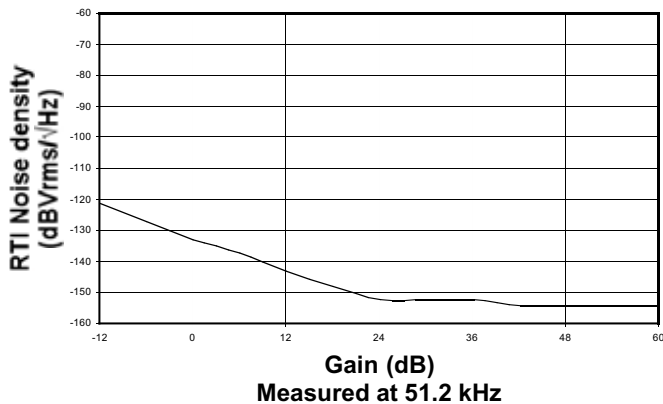
Common Mode Rejection Ratio



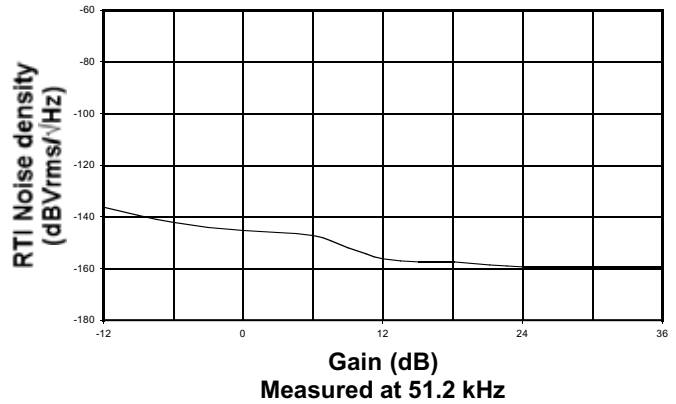
Common Mode Rejection Ratio



Noise



Noise





Specification

(25°C and rated power input)

Programmable Amplifiers For VME Boards

VME Board	VM32PA PGA5-100	VM32PA2.0 PGA5-2.0
Analog Input Configuration Impedance Bias Current Offset Current Safe Voltage Linear Input Range CM RR AC Couple (Optional Fixed Freq.) Analog Output Configuration Differential Output Impedance Linear Operating Range Chl. to Chl. Cross-talk Maximum Current Offset Voltage Offset Temp. Coeff. Programmable Amplifier Signal Bandwidth (-3 dB) Amplitude Match* Phase Match* Noise Voltage Density, RTI Distortion (2V pk-pk) Distortion G=2X at 3V _{RMS} Output, RL=2kΩ, BW=80 kHz Gain Programming Gain Accuracy @ DC	DC coupled, differential input 1 MΩ/22pF 20 pA max. 10 pA max. ±15V 8V pk, each leg Typ. 80 dB @ 1 kHz min. 60 dB, 10 Hz to 100 kHz 10Hz to 1.0kHz Single ended, DC coupled Optional <1Ω typ., 10Ω max. ±5V, Output clamped to ±9V <-100dB @ 1 kHz, <-90dB @ 20 kHz ±5 mA 2mV RTI, NTE 40 mV max. ±(5+ 100/G) μV/°C 100 kHz, Gain ≥6 dB 500 kHz, Gain <6 dB ±0.1dB @ DC, linear to ±0.25dB at 100 kHz 0.2° typ., 1° max @ 10 kHz 20nV/√Hz @1kHz,G=1,024 NA -83dB, 1 kHz single ended -86dB, 1 kHz differential 0.25X to 1024X in factors of 2 ±0.1 dB	DC coupled, differential input 1 MΩ/22pF 10 pA max. 10 pA max. ±10V 8V pk, each leg ≥50 dB, DC to 100 kHz ≥40dB,100kHz to 2MHz 20Hz to 1.0k Hz Single ended, DC coupled NA 1Ω typ., 10Ω max. ±5V, Output clamped to ±9V <-100dB @ 1 kHz, <-90dB @ 20 kHz ±5 mA <25 mV typ. At output 1.5 mV/°C at output 25 mV/°C referred to input 2 MHz 0.2dB over specified bandwidth ±2.0° over specified bandwidth 16nV/√Hz @1kHz, G=64 ≤-60db, 20 Hz to 100 kHz ≤-50 dB, 100 kHz to 2 MHz NA 0.25X to 64X in factors of 2 ±0.1 dB

*Any two channels set to same gain and loading
 NA – Not Available