



**FREQUENCY
DEVICES™, INC.**

Model VM2.0PAFF

Programmable Amplifiers
with Fixed Frequency Filters

32 Channel

>100 kHz to 2.0 MHz VME Board

Description

Frequency Devices' Model VM2.0PAFF comprises a family of VMEbus amplifier/filter boards offering software programmable differential amplifiers combined with precision 4-pole Butterworth or Bessel linear analog filters in a single width B-size (6U) VME form factor. VM2.0PAFF boards provide simultaneous access to 32, DC-coupled wideband signals while providing programmable gain from -12dB to $+36\text{dB}$ in 6dB steps and fixed frequency filters with corner frequencies from >100 kHz to 2.0 MHz. VM2.0PAFF boards may be configured with 8, 16, or 32 channels. The boards conform to VME revision C.1 as an A16/D16 Slave. Available options include AC-coupled input.

Features/Benefits:

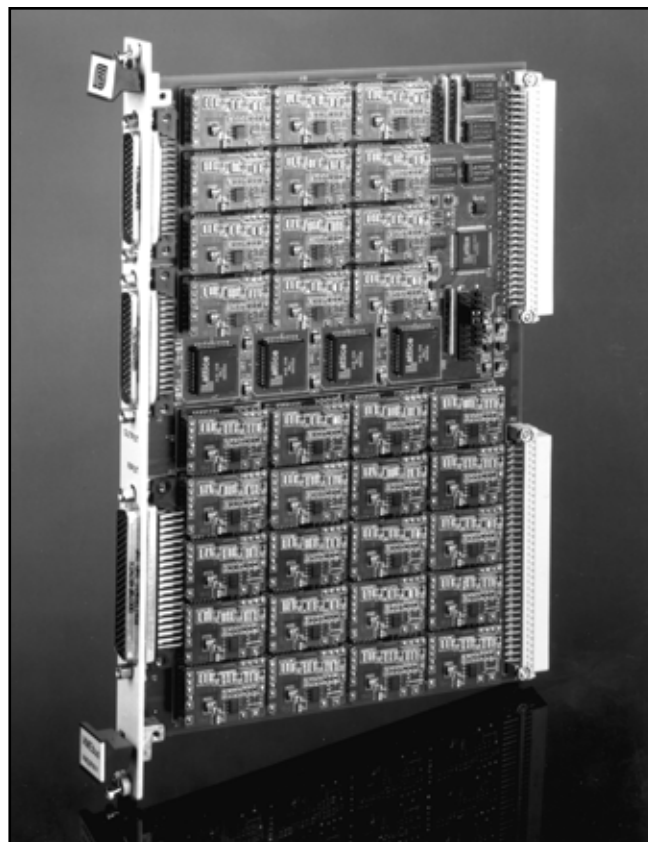
- Simultaneous access over 32 channels offers a low cost, versatile and convenient way to provide amplification and filtering.
- Three active read/write registers provide programming and set-up verification.
- Phase match of $\pm 2.0^\circ$ and gain accuracy of $\pm 0.1\text{dB}$ provides precision performance solutions to design engineers, system integrators and OEM's.
- Four pole Butterworth or Bessel transfer functions with broad range of corner frequencies to meet a wide range of applications
- High channel count density without sacrificing performance maximizes chassis utilization.

Signal conditioning applications include:

- Sonar, navigation and aerospace
- Engine test and simulation
- Acoustic and vibration analysis
- Satellite and telecommunications
- Laboratory R & D
- Automatic test equipment (ATE)
- Industrial process control

Ordering Information

8, 16, or 32 Channels



AMPLIFIER/FILTER OPTIONS

- | | |
|------------------|---|
| PGAB5-2.0 | -12 dB to +36 dB in 6 dB steps
Butterworth 4-pole, >100 kHz to 2.0 MHz |
| PGAL5-2.0 | -12 dB to +36 dB in 6 dB steps
Bessel 4-pole, >100 kHz to 2.0 MHz |

Optional

A- AC Coupled Input

VM2.0PAFF-32 – PGAL5-2.0-1.75 MHz-A

-3 dB Corner Frequency

e.g.>100kHz to 2.0 MHz



Specifications

(@ 25°C and rated power Input)

32 CHANNEL VME SIGNAL CONDITIONING BOARD

Analog Input

- | | |
|-------------------------------------|--|
| 1. Impedance | 1 M Ω //22 pF |
| 2. Maximum Input | 20V pk-pk each leg |
| 3. Linear Input Range | $\pm$ 8V pk |
| 4. AC Couple (Optional Fixed Freq.) | 20 Hz to 1.0 kHz |
| 5. CMRR | $\geq$ 50 dB, DC to 100 kHz
$\geq$ 40 dB, DC to 2 MHz |

Analog Output

- | | |
|---------------------------|-------------------------------------|
| 6. Impedance | 1.0 Ω typ., 10 Ω max. |
| 7. Offset Voltage | 25 mV typ., 50 mV max. |
| 8. Linear Operating Range | $\pm$ 4V into 500 Ω |
| 9. Offset Temp. Coeff. | $\pm$ (5 + 100/G) μ V/°C max. |

Filter Characteristics

- | | |
|------------------------------------|---|
| 10. Anti-Alias Filtering | Fixed frequency 4-pole low-pass Butterworth or Bessel |
| 11. Cut-off Frequency f_c (-3dB) | >100 kHz to 2.0 MHz |
| 12. Amplitude Match* | $\pm$ 0.2 dB @ DC |
| 13. Phase Match* | 2.0° max. @ f_c |
| 14. Noise Voltage Density, RTI | 25nV/ $\sqrt{\text{Hz}}$ @ 1 kHz |
| 15. Distortion (2 V pk-pk) | $\leq$ -60 dB to 100 kHz
$\leq$ -50 dB, 100 kHz to 2.0 MHz |

Gain

- | | |
|--------------------------|--|
| 16. Gain Programming (G) | 0.25X to 64X in factors of 2:1 (before filtering)
32 channels programmed over VMEbus with read-back |
| 17. Gain Accuracy @ DC | $\pm$ 0.1 dB max. |

VMEbus

- | | |
|---------------|--|
| 18. Interface | A16/D16, D08 (EO), Slave |
| 19. Registers | Three active R/W registers in 64 byte blocks |

Power Supply

- | | |
|------------------------|--|
| 20. From VME Backplane | +5V – 1.0A max.
$\pm$ 12 – 0.7A max. each |
|------------------------|--|

Environmental

- | | |
|---------------------|----------------------|
| 21. Operating Temp. | 0°C to +70°C |
| 22. Storage Temp. | -25°C to +85°C |
| 23. Humidity | 0-95% non-condensing |

Mechanical

- | | |
|----------------------------|---|
| 24. Card Size | VMEbus 6U single slot 9.17 x 6.3 inches, (233 x 160 mm) |
| 25. No. of Input Channels | 32 – DC coupled |
| 26. No. of Output Channels | 32 Single ended – DC coupled, Two groups of 16 |
| 27. Mating Connectors | Input: Male high density 78-pin D sub, Quantity 1
Output: Female high density 44-pin D sub, Quantity 2 |
| 28. Weight | 1 LB., (454 grams) |

*Any two channels set to same gain and loading

We hope the information given here will be helpful. The information is based on data and our best knowledge, and we consider the information to be true and accurate. Please read all statements, recommendations or suggestions herein in conjunction with our conditions of sale which apply to all goods supplied by us. We assume no responsibility for the use of these statements, recommendations or suggestions, nor do we intend them as a recommendation for any use which would infringe any patent or copyright. PR-VM2.0PAFF-00