1 A4MEMS: 3-channel high-voltage amplifier

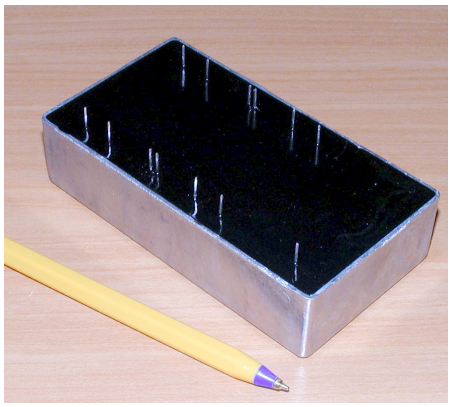

Figure 1: Typical view of 3-channel high-voltage DC amplifier A4MEMS

A4MEMS is a 3-channel high-voltage amplifier specially designed as a quick low-cost solution for prototyping of multichannel high-voltage MEMS circuits. It is a convenient tool for driving a wide variety of electrostatic and piezoelectric actuators. Each of its 3 independent amplifiers with gain of 56 is capable of driving capacitive loads in a wide frequency range. The frequency response of the gain for various loads is presented on figure 2.

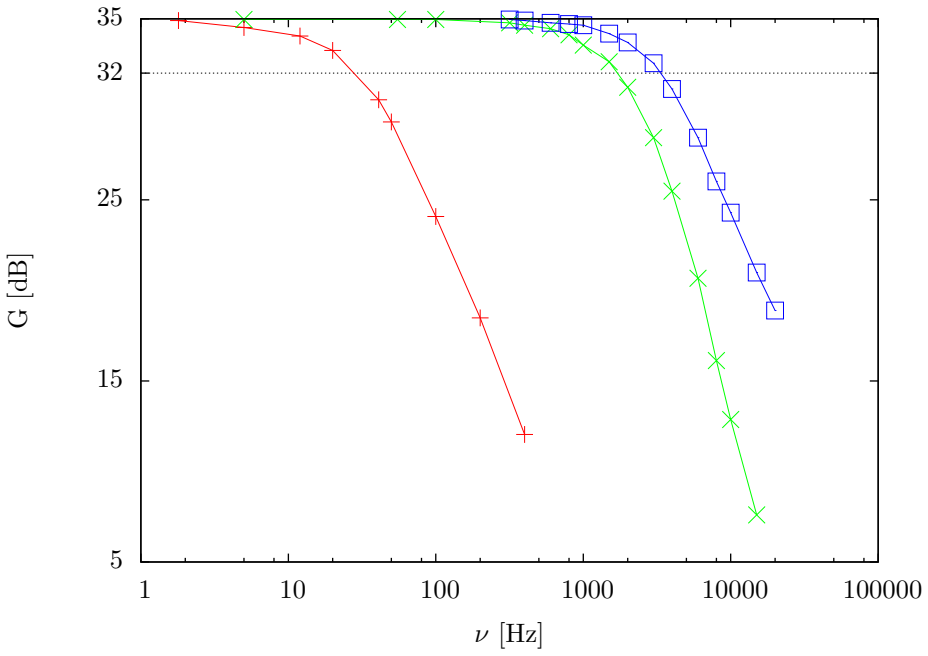

Figure 2: DC gain ($20\log_{10}(U_{out}/U_{in})$) as a function of input signal frequency for the loads of 0.47 μF (+), 4 nF (×), and no load (□)

A4MEMS measures 110 x 60 x 30mm. It provides 0 . . . 300 V output in 3 independent channels, as well as optional high voltage output from the power block (HV on the figure 3). Devices with extended up to 0 . . . 400 V voltage range are available on special order. The unit does not require

any external high voltage supply and can be powered from any 16 V 200 mA laboratory supply (lower voltages can be used to trim the maximum output voltage). See Table 1 for the technical parameters.

A4MEMS features a complete short circuit protection – the unit can continuously operate with all 3 outputs connected to the ground, regardless of the state of its inputs. Several units can be combined for quick prototyping of multi-channel high-voltage drivers in telecom applications and adaptive optics. The device have single common ground for all inputs, outputs, and the power supply. The case of the device is grounded.

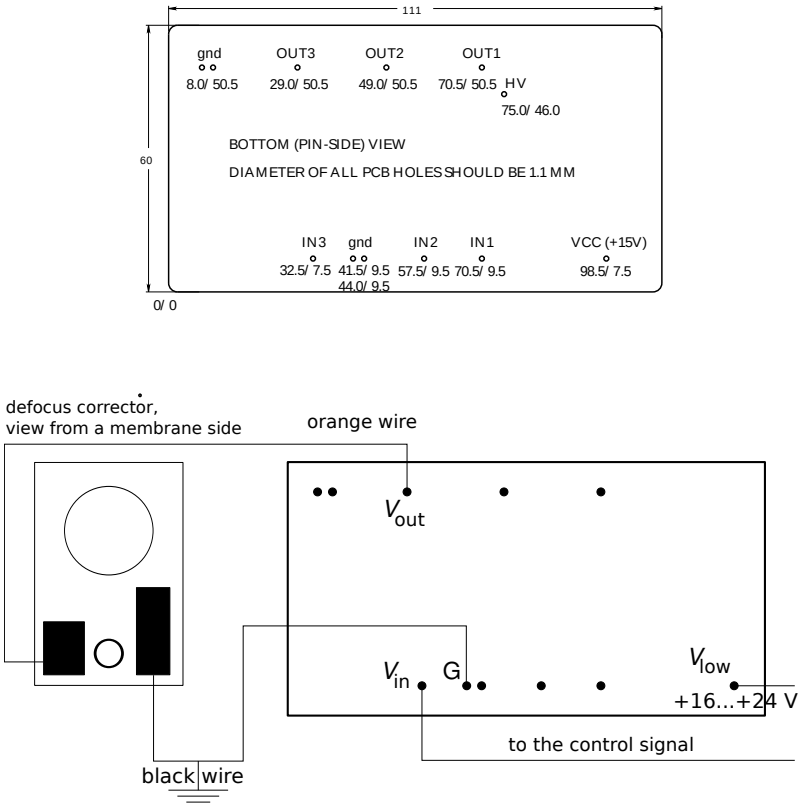

Figure 3: Pin-out and an example of connection scheme for the defocus corrector and A4MEMS.

2 Warranty

The equipment is covered by a one-year factory-defect warranty.

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Table 1: Technical parameters

Parameter	Value
Number of channels	3
DC Gain	≈ 54
Output impedance	$10\,k\Omega$
Short circuit protection	yes
Frequency range at 1 nF load	$0 \ldots 1$ kHz
Input voltage	$0 \ldots 5.5$ V
Low voltage power supply	$16 \ldots 24$ V
Output voltage	$0.5 \ldots 300$ V
Maximum capacitive load	30 nF
Power dissipation	3.4 W
Size	$110 \times 60 \times 30$ mm^3
Weight	330 g

DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE HARDWARE AND SOFTWARE DESCRIBED IN THIS DOCUMENT.

3 Contact person

All questions about the technology, quality, and applications of the equipment should be addressed to:

Flexible Optical B.V.
Polakweg 10-11,
2288 GG, Rijswijk ZH
The Netherlands

Date:
Signature: