

Flexible Optical B.V.

Adaptive Optics • Optical Microsystems • Wavefront Sensors



40(20) - channel high-voltage amplifier unit: technical passport

OKO Technologies,

OKO Technologies is the trade name of Flexible Optical BV

1 High-voltage amplifier unit



Figure 1: 40- and 20-channel high-voltage amplifier unit.

The high-voltage amplifier unit can be used to control the deformable mirrors produced by OKO Technologies. Each unit contains:

- 1 or 2 HV amplifier board(s);
- high-voltage power supply;
- low-voltage power supply.

The high-voltage power supply can be tuned to the desired maximum voltage in the range 100...400 V.

The high-voltage control-amplifier unit simplifies significantly the setup and use of AO systems in respect with OEM configuration. Every unit shipped with any OKO adaptive mirror is pre-configured for this specific mirror eliminating the need of any further configuration by user.

To use the unit, you must connect it to the mirror, to a DAC USB unit (or PCI boards) and to the wall outlet (85 to 250V AC, 50 to 60 Hz). Connect the mirror with a supplied flat ribbon cables to the 20-pin connectors on the front side, and the driver boards or the USB unit to the 26-pin connectors.

For PDM 20 Connect the ground pin of the mirror with the ground connector of the amplifier unit located on the back panel (Fig. 2) using the supplied cable and to the ground connector of the USB unit (or to the metal case of the PC, if PCI board is used to drive the mirror). See Fig. 2 for the reference.



Figure 2: Front and back panels of 40 channel high-voltage amplifier unit.

2 Technical data

See Table 1 for technical parameters of the unit before shipping.

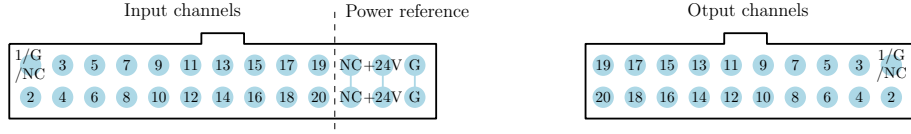


Figure 3: Pinout of the input and output connectors

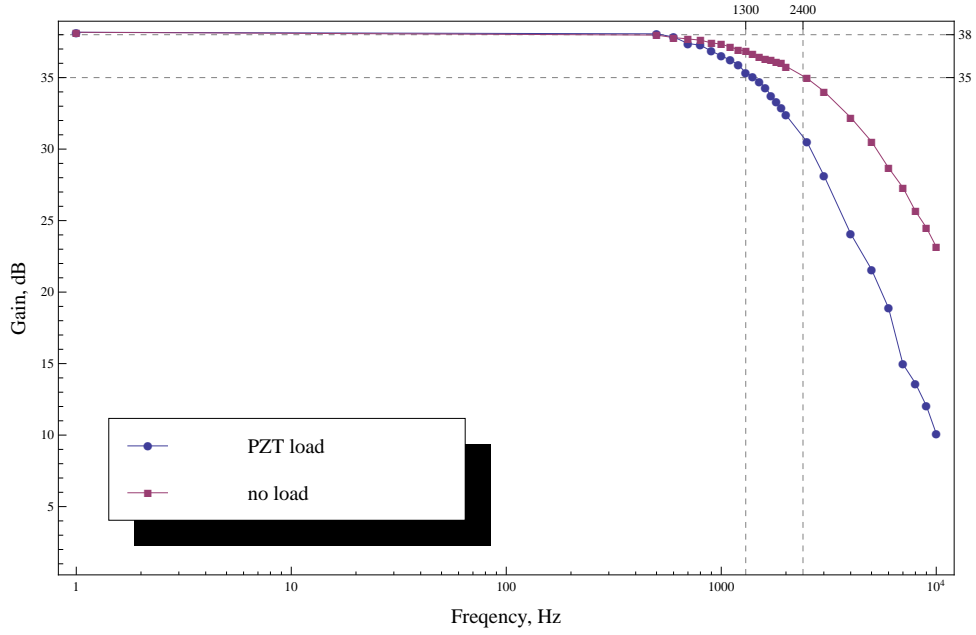


Figure 4: AC response of the amplifier without load and with PZT load ($\approx 6.2\text{nF}$)

Table 1: Technical parameters of the unit.

Parameter	Value
# of channels	20/40
DC Gain	≈ 81
AC Gain	see the plots in Fig. 4
Corner frequency, no load	2.4 kHz
Corner frequency, 6.2 nF load	1.3 kHz
Input/output pin correspondence	see Fig. 3
Configuration of pin # 1, top output connector	GND/NC/Vout1
bottom output connector	GND/NC/Vout1
Configuration of pin #1, top input connector	GND/NC/Vin1
bottom input connector	GND/NC/Vin1
Maximum load per channel	20 nF
Total maximum dissipated power	$\leq 60\text{ W}$
Output short circuit protection	yes

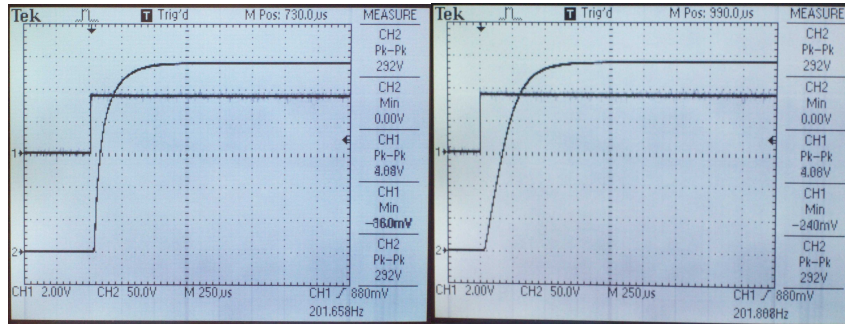


Figure 5: Unit step response without load (left) and with 6.2 nF load (right)

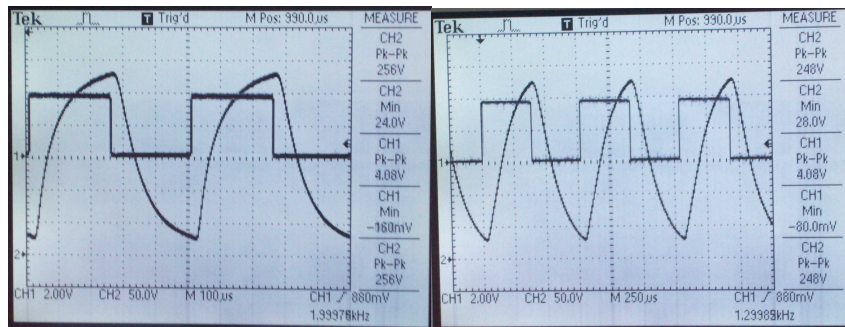


Figure 6: Amplifier output with 4V rectangular input signal: at 2 kHz without load (left) and with 6.2 nF load at 1.3 kHz (right)

3 Warranty

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

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4 Contact person

All questions about the technology, quality and applications of the amplifier should be addressed to:
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The Netherlands

Date:

Signature:

August 15, 2012