

LEYSOP LTD

Manufacturers and suppliers of electro-optic components

M1000 High Voltage Linear Amplifier

Electro-optic modulators are voltage driven devices and in general high voltages are required. Pockels cells also almost always present a capacitive load to the driver which can cause stability problems when used with amplifiers not designed specifically for the purpose.

One of the most common applications for this amplifier is to drive a transverse field KD*P or ADP cell for analogue modulation. The Pockels cell is typically either optically or electrically biased to the quarter wave operating condition so that the cell is operating at its most linear point in its transfer characteristic. The amplifier is then able to apply a differential voltage across the load which swings by up to >500V peak to peak and in opposite phase on each of the terminals across which the load is connected. This then produces a field change in the device equal to that from a 1,000V single ended amplifier which is sufficient for full modulation with 6mm aperture transverse field ADP and KD*P modulators and even up to $\sim 1\mu\text{m}$ wavelength. Typical applications are for example, true polarization rotation (with an added waveplate) and as a modulator for multi-photon microscopy.

Of course, with such high voltages present safety is of paramount importance and the amplifier output terminals are fitted with SHV safe high voltage BNC type connectors (conventional BNC are used on the external input and monitor output).

>500V peak to peak differential output voltage equivalent to 1,000V single ended amplifier

Suitable for larger aperture transverse field KD*P and ADP low-voltage modulators and smaller RTP Pockels cells.

Full power -3dB bandwidth of >1MHz.

Rise/fall time
<300ns at 1kV differential
<250ns at 800V differential

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Product Specifications

Parameter	Specification
Output voltage range	30-590V (each side)
Full amplitude frequency response	>1MHz (sinewave)
Small signal frequency response (20% of full amplitude)	>3MHz
Rise and fall time, full signal (1,000V differential)	<300ns
Amplifier gain (differential output swing divided by input swing)	400 ($\pm 2\%$)
Input voltage for full output (1,000V differential)	2.5V Peak to Peak
Input impedance	50 ohm
Cabinet form	63HP width x 3U height rack
Case dimensions (mm)	160 (height) x 360 (width) 310 depth
Mains input voltage	90 – 264V ac 50/60Hz

Specifications for guidance only, subject to modification without notice.

