

# LEYSOP LTD

Manufacturers and suppliers of electro-optic components

## M5000 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 longitudinal field KD\*P Pockels cell for analogue modulation. The Pockels cell is then typically optically biased to the quarter wave operating condition with a wave-plate 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 2500V 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 5000V single ended amplifier which is sufficient for full modulation with a single crystal KD\*P cell such as our EM500 range for wavelengths up to around 850nm. With a more sensitive double crystal Pockels cell, operation is extended to over 1 $\mu$ m.

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).

2500V peak to peak differential output voltage equivalent to 5000V single ended amplifier

Suitable for most KD\*P modulators

Full power -3dB bandwidth of ~14kHz and small signal bandwidth 100kHz.

Internal signal generator

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## Product Specifications

Parameter	Specification
Output voltage range	400-3000V (each side)
Full amplitude frequency response	14kHz
Small signal frequency response (10% of full amplitude)	100kHz
Rise and fall time	5 $\mu$ s
Amplifier gain (differential output swing divided by input swing)	1000 ( $\pm$ 2%)
Internal oscillator frequency range	1Hz to 10kHz in 4 ranges
Internal oscillator amplitude	Continuously adjustable to approximately $\pm$ 2.5V pk-pk
Functions	Sine, square, triangle
Signal to noise ratio	50dB
Input voltage for full output	-2.5 to +2.5V
Input impedance	1000 ohm
Cabinet form	19" x 3U height rack
Case dimensions (mm)	220 (height) x 530 (width) 340 depth
Mains input voltage	110/200/240ac 50/60Hz

Specifications for guidance only, subject to modification without notice.

