

Kentech Instruments Ltd

OPERATIONS MANUAL

for

ASE suppressor

Serial no. _____



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(i) DISCLAIMER

There are high voltage power supplies (4kV) present in this instrument when the unit is operating. Do not remove any covers from the ASE or expose any part of its circuitry. In the event of malfunction, the ASE must be returned to Kentech Instruments Ltd or its appointed agent for repair.

Kentech Instruments Ltd accepts no responsibility for any electric shock or injury arising from use or misuse of this product. It is the responsibility of the user to exercise care and common sense with this high performance equipment.

The accessible terminals of this instrument are protected from hazardous voltages by basic insulation and protective grounding via the metal housing. It is essential that the housing is grounded via the mounting brackets and/or the DC power supply return connection.

If cleaning is necessary this should be performed with a soft dry cloth or tissue only.

(ii)

EMC warning

ASE pockels cell driver

This equipment includes circuits intentionally designed to generate fast rise, high voltage signals and the EM emissions will be sensitive to the details of the load. The ASE driver and the pockels cell must be housed in a screened box in order for the EM emissions will fall within EN55011 “Emissions Specification for Industrial, Scientific and Medical equipment”.

1 INTRODUCTION

The ASE pockels cell driver produces a programmable duration impulse to a pockels cells, specifically for suppressing ASE in high gain laser systems. Usually the pockels cell will have a double crystal for use at 1 μ m. The ASE has a rise time of typically 20ns and can produce multiple pulses with flat tops of duration in the range 0.5 μ s to 100 μ s.

The decay time is approximately 10 μ secs and within a 128 μ secs maximum window the ASE can be re-triggered.

The unit operates from a 24V DC power supply with a power consumption of ~5VA. There is a power indicator (amber) and a trigger indicator (green).

The unit is triggered on the rising edge of the trigger signal which should be 5V into a high impedance (2k Ω) load. Note that the trigger is not 50 ohms terminated.

Connections to the pockels cell are made by two flying leads (supplied) which plug into 2mm receptacles within the unit, accessible via holes in the cover. Although the current supply capacity is very small be sure to use adequate insulation when connecting to the (user supplied) pockels cell to avoid breakdown. Note that the unit is not damaged by operation into a short circuit of arcing load.

2 ASE SPECIFICATIONS

Load	Pockels cell, e.g. Linos DPZ8, 50pF maximum
Rise time	< 25ns into DPZ8
Recovery time	~10usecs
PRF	100Hz for PW <12us or 10Hz for PW >12us
Pulse width	0.5 - 100us flat top duration
PW control	User accessible DIP switches
Re-triggering	Yes, within a 128us envelope
Trigger	TTL, 2k2
PSU	24V DC nominal
Size	145 x 95 x 45mm
Voltage	3.6kV max
Polarity	Negative pulse
V control	User accessible trimmer
Housing	Die cast box with mounting brackets
Indicators	Power, triggered

3 USE

The unit should be mounted close the pockels cell with leads no more than 15cm long to maintain rise time and minimise RF emissions. The ASE dissipates a few watts of power and is best directly bolted to an optical bench.

If the operating voltage and pulse duration must be adjusted in situ mount the unit in an orientation which allows access to the pulse width DIP switches and the voltage adjusting trimmer.