

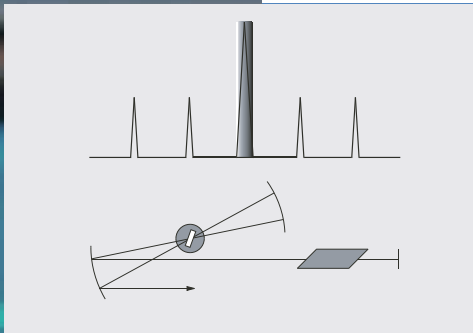


Cavity Dumper Kit

The **Cavity Dumper Kit** is an acousto-optical switch that can be integrated into the cavity of a mode-locked laser system for the reduction of the system's pulse repetition rate. Unlike pulse pickers the intracavity operation increases the pulse energy to a multiple of the energy that is reached by the normal mode-locked pulses of the system. This makes it particularly relevant for non-linear optical processes like SHG and THG.

The **Cavity Dumper Kit** consists of an acousto-optical Bragg cell to be integrated into the laser cavity and the **pulseSwitch** control electronics. As an option A·P·E offers a mounting kit for holding the Bragg cell, which provides all the necessary tools for adjusting the modulator.

The control electronics generate the RF carrier signal for the Bragg cell from a seed input signal with the repetition rate of the mode-locked system. An internal frequency divider allows for division rates between 1:20 and 1:5000 of the seed frequency (optional: 1:2 ... 1:260000). External triggering and therefore single pulse operation is possible as well. The phase of the RF signal is fine-tuned by a phase shifter as a requirement for using the cavity dumper in double pass operation.



- Generation of powerful laser pulses
- Fast rise times
- Tunable phase shift
- Suitable for a variety of different Ti:Sapphire, ion- and dye lasers as well as other laser systems



Specifications

Modulator Element

Material	fused silica, Brewster configuration
Required beam diameter	approx. 50 μm
Wavelength range	340 ... > 1600 nm
Diffraction efficiency	> 50 % ¹⁾

RF Driver

Seed frequency (f_{seed}) ²⁾	70 ... 85 MHz
Option	25 ... 70 MHz 85 ... 100 MHz (others on request) (to be specified with ± 0.5 MHz accuracy at time of order)
Output repetition rate	single shot ... 3 MHz externally triggerer $f_{\text{seed}}/20$... $f_{\text{seed}}/5000$ with internal divider $f/2$... $f/2600000$ (optional)
Carrier frequency	synchronized to seed frequency
Electronic pulse rise time	2 ns
Electronic pulse timing jitter	< 50 ps
RF phase shift tuning range	> 180°

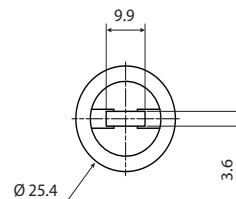
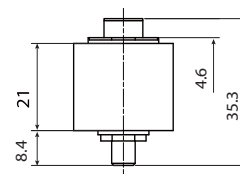
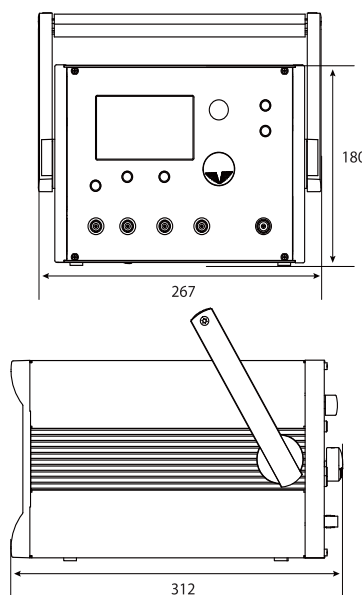
1) Single pass at 800 nm, 4 MHz (varying with wavelength and repetition rate)

2) Synchronization signal with the laser repetition rate from a fast photodiode is required

Dimensions (in mm)

Control electronics:
267 x 180 x 312 (W x H x D)

Bragg cell:
see below



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