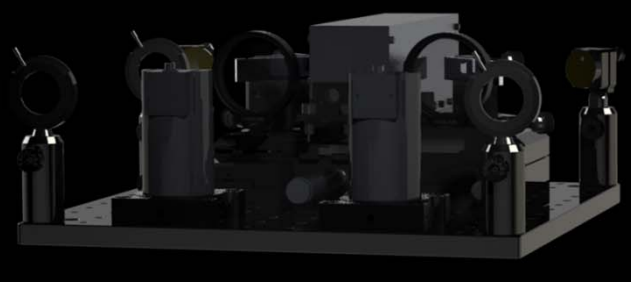
PHASETECH
spectroscopy shaping science

QuickKit

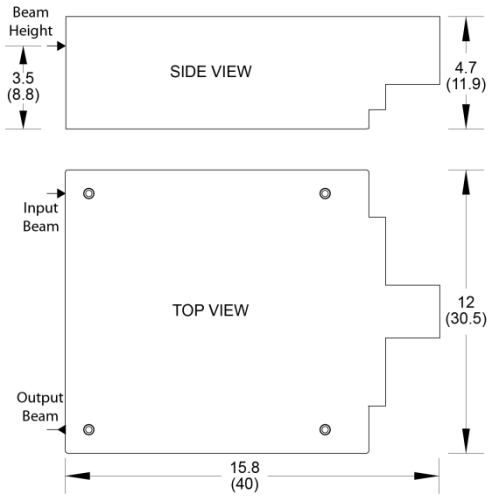


Everything you need to quickly build a robust and highly customizable mid-IR pulse shaper. The kit includes:

- Step-by-step assembly instructions
- Detailed user manual
- Example LabView™ control software
- PhaseTech XC300 phase-locked external clock
- Custom mounts for easier assembly, wavelength tuning and day-to-day use

Specifications	
Input Center Frequency	4.5-6.5 μm
Spectral Window	1.5 μm at 5.5 μm[1]
Repetition Rate	≤ 4 kHz
Effective Pixels[2]	> 150[1]
Maximum Double Pulse Delay[3]	> 7 ps[1]
Input Beam Size (1/e^2)	7 mm, collimated
Input Polarization	Linear, horizontal
Output Polarization	Linear, horizontal
Size (assembled)	15.8 x 12 x 4.7 in (40 x 30.5 x 11.9 cm)
Estimated Assembly Time	< 16 hours
Throughput Efficiency	> 25%[1]

[1] Specification is based on our standard gratings and an input diameter of 7mm. Other gratings are available upon request or can be provided by the user.
[2] The number of effective controllable elements across the AOM window based on spectral window and effective pixel size measured in Fig. 1 below.
[3] Calculated based on effective pixel size with standard gratings



General dimensions of assembled kit in inches (mm). The location of 4 clearance holes for securing to an optical table are indicated Input and output beam positions can be switched.

ADDITIONAL INFORMATION

We recommend that the customer also have the following:

- A digital delay generator and/or function generator capable of generating the trigger and gate described in Figures 2 and 3.
- A fast-response mid-IR detector and an oscilloscope
- A HeNe laser or visible laser diode that is collinear with mid-IR source
- A setup for generating and detecting SHG from the shaper output is useful for compressing the output pulse duration. We can provide an SHG accessory for sale upon request.
- A selection of well-shielded coaxial cables with SMA and BNC connectors
- A chilled water supply for cooling the RF amplifier (500 W capacity)
- A low-impedance +24V DC power supply capable of providing ~24A of current
- A PC with Windows XP and an available PCI slot

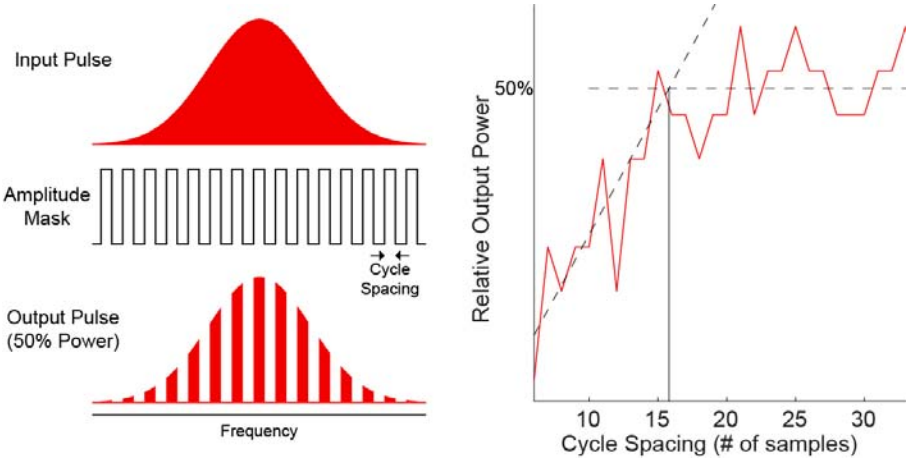


Figure 1. (left) The effective pixel size is estimated by measuring the output power with a 50% duty cycle mask as a function of the cycle spacing (in samples). (right) The effective pixel size is the cycle spacing (in number of samples) at which the output power begins to deviate from 50%.

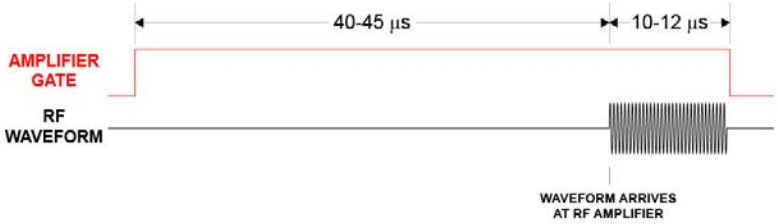


Figure 2. The RF amplifier requires a gate pulse which rises at least 40 µs before the RF waveform arrives at the amplifier and falls after the end of the RF waveform.

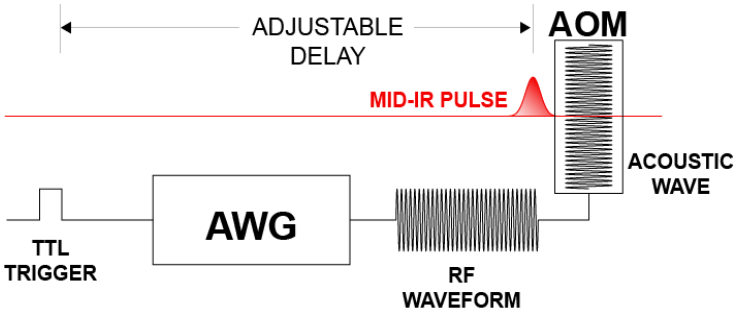


Figure 3. A TTL trigger must be provided to the arbitrary waveform generator (AWG) such that the acoustic wave generated in the AOM coincidence with the arrival time of the mid-IR pulse.

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