



# Electro-optical Modulator (EOM)

The A·P·E external Electro-optical Modulator (EOM) is an accessory for laser sources based on A·P·E's long standing experience in designing optoelectronics. It is a dedicated modulator that was designed to be used in Stimulated Raman Scattering (SRS) and other applications that require an amplitude modulated signal. The external EOM can be used with most CW or mode-locked lasers, or synchronously pumped OPOs in the VIS to NIR range (as for example the Levante Emerald or the 1031 nm output of the Emerald Engine). It modulates the amplitude of the beam with a fixed frequency of either 10 MHz or 20 MHz. Modulators for different wavelengths between 420 nm and 1600 nm are available as well.

The EOM combines an electro-optical crystal with a polarizer in a single housing and can be easily mounted onto the optical table. The modulator is connected to the computer through a USB interface and power and phase can be easily remote controlled through the Windows-based Control Software. For easy synchronization the modulator can be connected to the pump laser sync output (typically a signal from a fast photo diode). Alternatively, the frequency can be generated internally.

- Amplitude modulation for laser beams
- Different wavelength ranges available
- 10 MHz or 20 MHz fixed modulation frequency (can be phase locked, synchronized to laser frequency:  $f/4$  or  $f/8$ )
- Resonant design for reduced RF radiation
- Ideal tool for SRS imaging applications



## Specifications

| Versions                          | EOM 420   | EOM 690        | EOM 900         | EOM 1030         | EOM 1200         |
|-----------------------------------|---|----------------|-----------------|------------------|------------------|
| Wavelength ranges <sup>1)2)</sup> | 420 ... 600 nm  | 690 ... 900 nm | 900 ... 1200 nm | 1030 ... 1064 nm | 1200 ... 1600 nm |
| Modulator frequency               | Either 10 MHz or 20 MHz fixed modulation frequency.<br>(Must be specified at time of order. Frequency can be phase locked to laser frequency: $f/4$ or $f/8$ .) |                |                 |                  |                  |
| Laser frequency <sup>3)</sup>     | 76 ... 84 MHz ( $\pm 0.5$ MHz)<br>(Must be specified at time of order and is fixed then)  |                |                 |                  |                  |
| Damage threshold modulator        | 2 W / mm <sup>2</sup> @ 532 nm<br>4 W / mm <sup>2</sup> @ 1064 nm   |                |                 |                  |                  |
| Modulation depth                  | > 85 % (after initial warm up)  |                |                 |                  |                  |

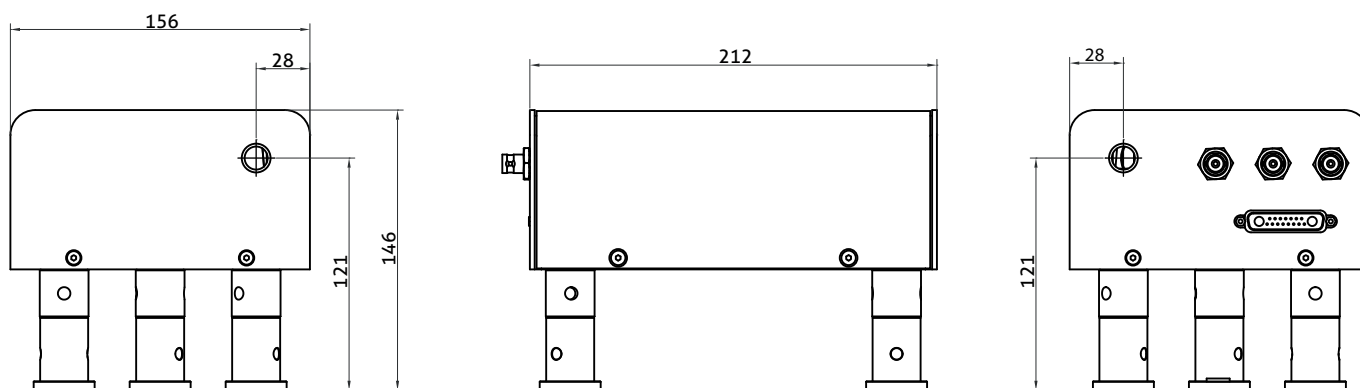
1) An optimization of the EOM settings to the specific wavelength used is necessary to achieve best modulation results.

2) Other wavelength ranges on request

3) If modulation sync to laser is required

The modulator design is resonant; therefore the required voltage is reduced compared to similar modulators resulting in a much lowered emission of RF radiation and thus much less disturbance of sensitive detection equipment, such as e.g. a lock-in amplifier.

## Dimensions (in mm)<sup>1)</sup>



1) Other heights on request

### Contact:

A-P-E Angewandte Physik & Elektronik GmbH  
 Plauener Str. 163-165 | Haus N | 13053 Berlin | Germany  
 T: +49 30 986 011-30 | E: sales@ape-berlin.de | www.ape-berlin.de

or

A-P-E America (for the Americas)  
 45401 Research Avenue | Suite 141 | Fremont, CA 94539 | USA  
 T: +1 (888) 690 3250 | E: sales@ape-america.com | www.ape-america.com

A-P-E follows a policy of continued product improvement.  
 Therefore, specifications are subject to change without notice.  
 © A-P-E GmbH | August 2015