



## SOM Series Modulator

A semiconductor optical modulator (SOM) utilizes an SOA (Semiconductor Optical Amplifier) as a light modulator. A CW laser diode signal is coupled into the SOA. The bias current driving the SOA is switched ON/OFF in a pulsed mode at very high repetition rate. The result is a high speed fiber optic modulator which has many benefits relative to an AOM or EOM.

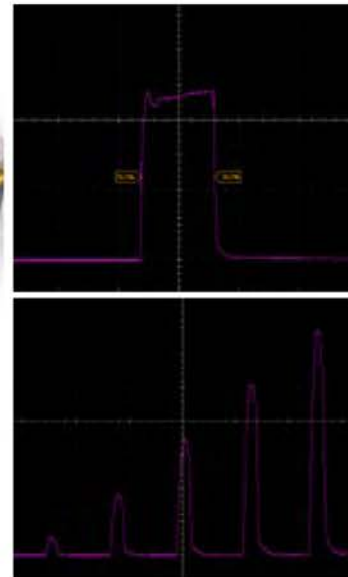
WORLD LEADING PRODUCTS  
FOR LASER SCIENTISTS AND ENGINEERS



# SOM Series

## High-speed fiber modulator/shutter

This turn-key fiber-coupled module has a switching speed  $<1$  ns and operates as a lossless **high dynamic range amplitude modulator**, a high-speed optical isolation switch or a full-range variable optical attenuator (VOA).



### Key features

- SOM (Semiconductor Optical Modulators) are a smart alternative to AOM (Acousto optic Modulators), EOM (Electro Optics Modulators) or even direct diode modulation. It is a lossless, low noise, high speed, high dynamic range, high extinction ratio and highly polarizing solution working from 750 to 1700 nm.
- Min. pulse duration:  $<1.5$  ns, timing Jitter down to 8 ps, up to 250 MHz repetition rate.
- SOM are SOA-based Amplitude Modulator. The SOA (Semiconductor Optical Amplifier) offer proven reliability and performance. Current/temperature control circuits and safety limits are pre-set and optimized to ensure the highest level of performance in pulsed mode.
- Wavelength from 750 to 1650 nm needs to be precised at the order (see table last page).
- All versions can be controlled either through USB link or through an analog signals.
- Most versions show fast delivery for immediate customer use.
- 1 version also includes 3 pulse-delay-generators for external synchronizations (SOM-Shape).



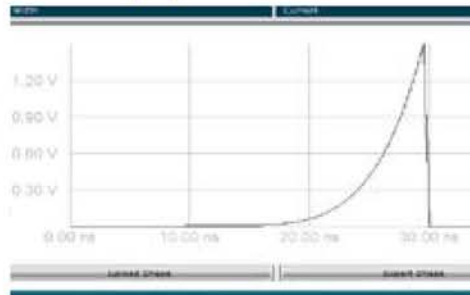


# Technical Specifications

SOM-std & SOM-HPP



SOM-shape pulse GUI



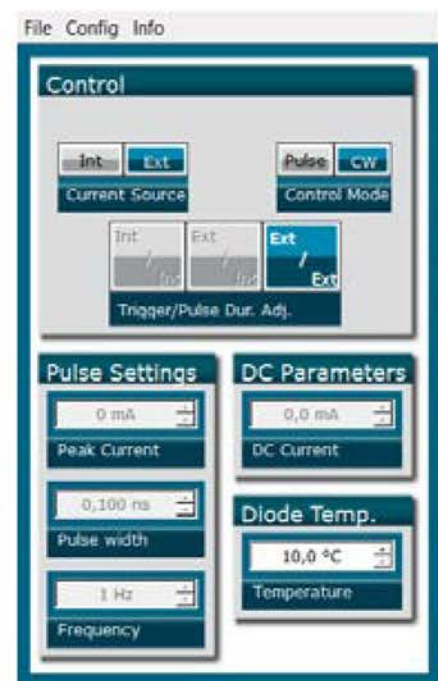
SOM-shape



## Specifications

Version:	SOM-std	SOM-HPP (High Pulse Performance)	SOM-shape (Pulse shaping)
Wavelength (nm)	Any wavelength to be chosen between 700 and 1650 nm [see wavelength table next page]		
Optical Bandwidth (nm)	From 20 nm to 110 nm to be selected		
Extinction ratio (dB,typ)	50 dB*		40 dB*
Switching speed (typ)	1 ns	1 ns	2 ns
Dynamic Range (up to)	60 dB	60 dB	48 dB
Small signal Gain	From 22 to 40 dB [see wavelength table next page]		
Trigger-to-pulse Jitter	<20 ps	<8 ps	<2 ns
Pulse shaping	no	no	yes
CW offset (in pulse mode)	no	yes	no
Max repetition rate	10 MHz	250 MHz	20 MHz
Max Output Power	From 20 to 100 mW <small>(more than 500 mW have been measured in some pulsed configuration)</small>		
Compatibilities and Libraries	USB - Windows 7/10 - DLLs - Hexa - Labview		

SOM-std GUI Interface

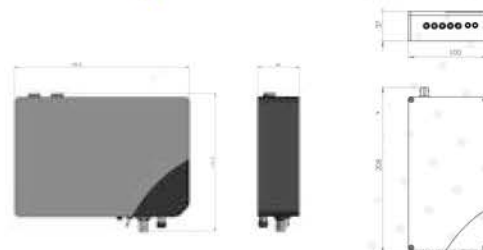


(\* : @ 10dBm input power- extinction ration can be lower above this input power level)

## Electrical

Operating voltage	12-15 Vdc (OEM) 110/220 V (SOM-std & HPP) 24Vdc (OEM) 110/220 V (SOM-Shape) AC/DC converter included
Input impedance	50 Ω

## Mechanical (SOM-Std & HPP; SOM-Shape)





**PRODUCT SALES AND SERVICE:**

Orders for this product are fulfilled by Laser Lab Source in North America and select international regions. It is manufactured by Aerodiode, Talence, France.

**PRODUCT WARRANTY:**

This product is sold with a full one year warranty. It is warranted to be free from defects in material and/or workmanship for a period of one year from the date of shipment.



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