

Modulation Systems – MPM Showcase

Conoptics Ti: Sapphire Intensity Control for Multi-Photon Microscopy (MPM)



CONOPTICS' a pioneer in the manufacturing of optics and laser accessories has developed a solution for Multi-Photon Microscopy (MPM).

Multiphoton fluorescence microscopy is a powerful research tool that combines the advanced optical techniques of laser scanning microscopy with long wavelength multiphoton fluorescence excitation to capture high-resolution, three-dimensional images of specimens tagged with highly specific fluorophores.

Conoptics' Model 350-80LA with BK (resonance-dampened) Option is a KD*P Series Electro-Optic modulator. When configured with our Model 302RM amplifier offers the ability to control laser intensity as well as high-speed shuttering. In addition, this solution can control beam attenuation and fly-back blanking with minimal dispersion and full modulation over the lasers bandwidth. The system operates center in/out with no spatial dispersion and rise/fall times of 1 micro-second.

Modulator Key Features:

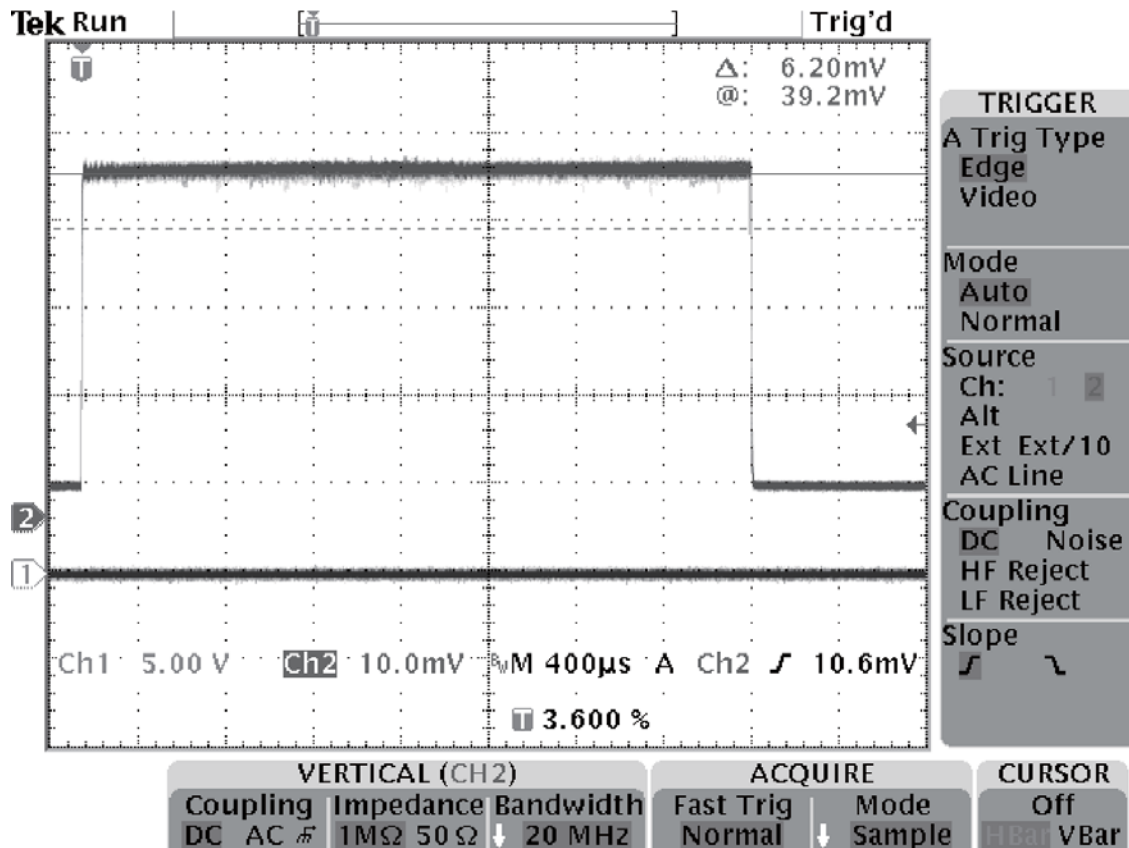
Aperture	3.5mm
Dimensions	50mm Diameter x 135mm
Transmission	>90%
Standard Wavelength Ranges	700 – to – 1100nm
Piezo Resonances	Minimal with clamped version (BK option)
Driver Compatibility	Full modulation with M302 Power Amplifier up to 1064nm

Amplifier Key Features:

Cabinet	Driver and power supply in single cabinet
Test Feature	Built-in test feature allows testing for max transmission of Pockel Cell without adjusting bias voltage
Input Impedance	Choice of amplifier input impedance by rear panel switch (50ohm/1K ohm)
DC Bias	Improved DC biasing of Pockel Cell provides greater linearity at higher bias voltages
Voltage Range	+/- 450VDC controlled by ten-turn front panel pot. Digital meter monitors differential bias applied to E.O. Modulator
Linearity	10bits referenced to full scale (.1%)
Bandwidth	DC to >200Khz with 90pf load and 3M (RG-62) cables
Max. Output Drive Level	750VP-P into 90pf load
Amplifier Input Signal	2VP-P max into 50/1K ohms delivers 750VP-P out
Input Signal Format	Options include Unipolar positive, negative or bipolar
Input Power (AC)	60W typical. Input power is both load (modulator) and frequency dependent.
Dimensions	19" Rack Mountable, 5.25"H(133mm) (3U) x 14"D (356mm)
Cooling	Forced air
Operating Environment	Designed for laboratory use (indoor only) Temperature range +5deg C to +50deg C ambient Humidity 20%-80% RH up to 32deg C Altitude <3000M
Weight	20lbs (9.07kg)

Output Response

The image below provide detected response at 514nm, 3ms pulse width, 250Hz rate



Dedication to the advancement of MPM

Conoptics is dedicated to the advancement of laser technology. The link below provides additional information on our collaboration with Cornell on MPM.

http://www.drbio.cornell.edu/Infrastructure/Apparatus_WWW/Conoptics.html

For additional information on our MPM solution or any of our product line please contact sales@conoptics.com.