

CHAPTERS

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OCT Components

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Dispersion Compensation Unit for MPM200 (Page 1 of 2)

NEW
products

Femtosecond pulses broaden as they pass through any optical element of the imaging system. This pulse-broadening phenomenon, a result of Group Delay Dispersion (GDD), results from the wavelength dependence of the refractive index of the various optical elements and acts to broaden the femtosecond pulses. Consequently, the peak power of the pulse is reduced. These effects can result in negative effects on both imaging depth and overall image quality (signal to noise ratio).



COMP630

Thorlabs' Dispersion Compensation Units consist of dielectric mirror pairs that have specialized coatings designed to delay the phase of longer wavelengths more than the phase of shorter wavelengths, thus cancelling pulse broadening at the focus of the objective. Two versions are available. The full compensation unit (COMP6300) consists of two dielectric mirror pairs (see page 1717), designed to match and compensate for the GDD associated with Thorlabs' MPM200 Multiphoton Microscope. The half compensation unit (COMP3150) consists of a single pair of dielectric mirrors and a single pair of silver mirrors. The figure at the top of the next page illustrates the benefits of using the COMP6300 in multiphoton imaging applications.

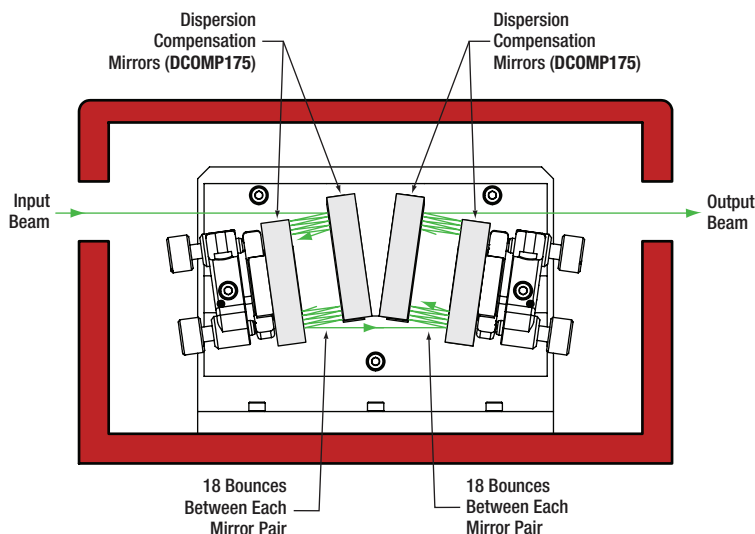
Specifications

ITEM #	COMP6300	COMP3150
Dispersion @ 800 nm	-6300 fs ²	-3150 fs ²
Wavelength Range	700 – 1000 nm	
Input Beam Diameter (Max)	4 mm	
Beam Height	4.25" or 4.75" (Please Specify When Placing an Order)	
Vertical Input Polarization	>80% Throughput	
Dimensions (L x W x H)	10.0" x 4.1" x 6.5" (254 mm x 104 mm x 165 mm)	
Input/Output	SM1 (1.035"-40) Threaded	

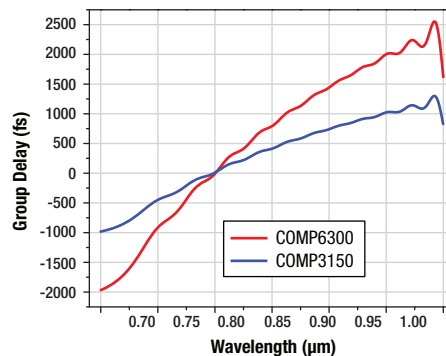
Features

- Compensates Group Delay of Ultra-Short Laser Pulses
- Easy Drop-In Integration
- Collinear Input/Output
- Enclose Input and Output Beams Using SM1 Lens Tubes (See Page 134)
- 1/4" (M6) Holes in Base Allow Mounting to Standard Optical Tables

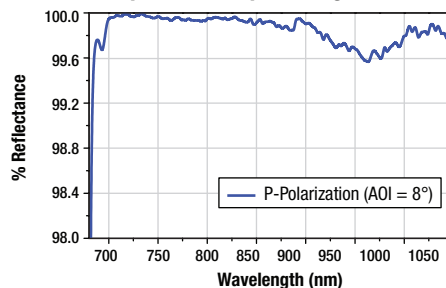
Dispersion Compensation Unit (COMP6300) Light Path



Group Delay vs Wavelength

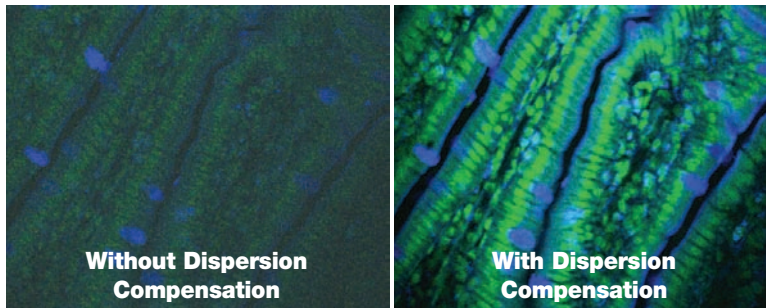
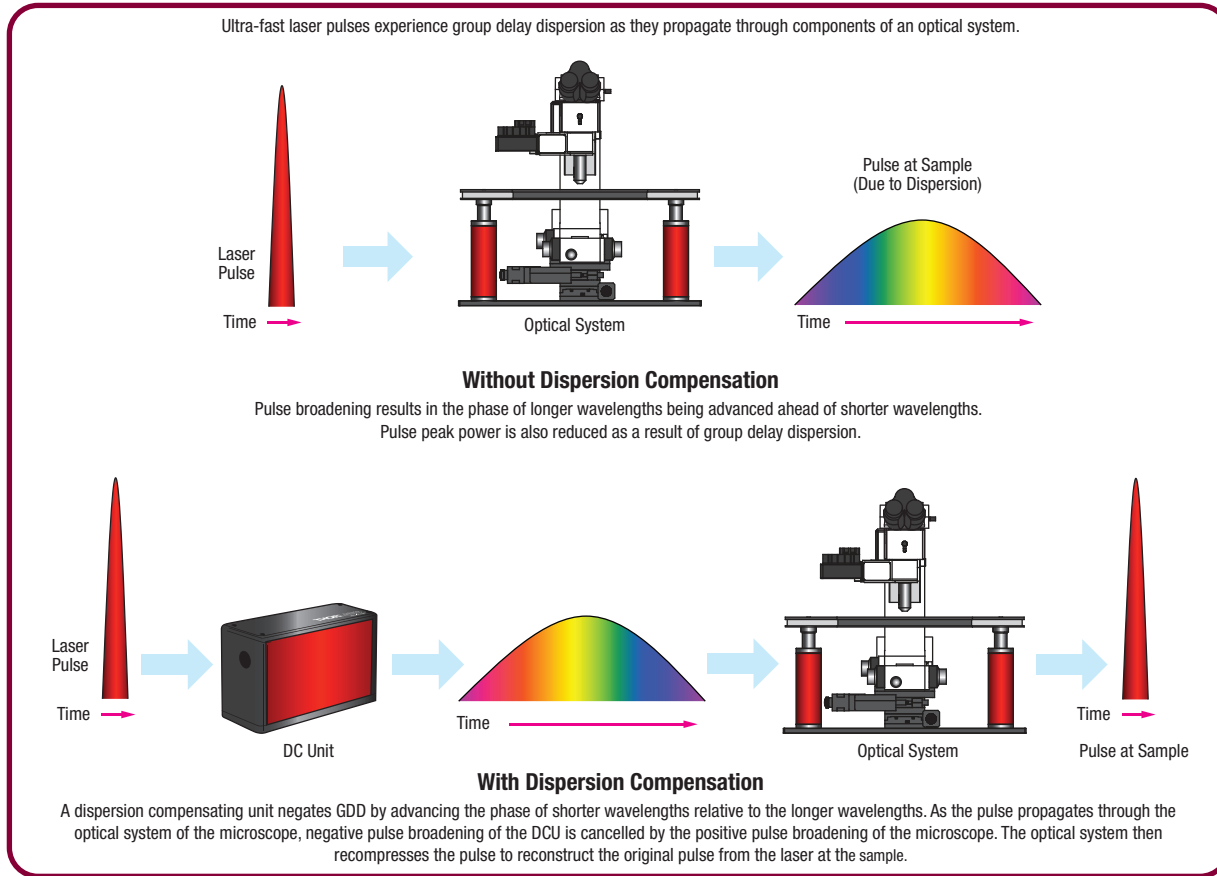


Dispersion Compensating Mirror Set



Dispersion Compensation Unit for MPM200 (Page 2 of 2)

Compensation of Group Delay Dispersion (GDD)

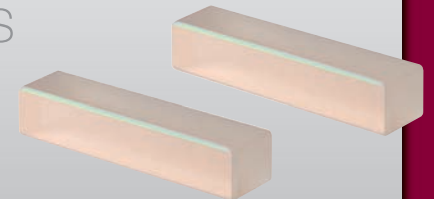


The two-photon images of a mouse intestine shown above demonstrate the benefits of using dispersion compensation to increase image quality. The image on the left was taken without the use of dispersion compensation, whereas the image on the right was acquired after adding a dispersion compensation unit to the setup. In the mouse intestine specimen, the goblet cell mucus and cell nuclei are labeled with Alexa Fluor 350 (blue) and SYTOX Green (green), respectively. These pseudocolor images were obtained using Thorlabs' multiphoton microscope equipped with a 40X Olympus objective (NA = 0.75). Two-photon excitation was provided by IdestaQE's Octavius-1G, a Ti:Sapphire oscillator that provides a repetition rate of 1 GHz and ultra short (<6 fs) pulses.

Have you seen our...

Dispersion Compensation Mirrors

Also Sold Separately



See page 1717

DCMP175

ITEM #	\$	£	€	RMB	DESCRIPTION
COMP6300	\$ 11,500.00	£ 8,280.00	€ 10,005.00	¥ 91,655.00	Dispersion Compensation Unit for Thorlabs' MPM200 Multiphoton System (-6300 fs ²)
COMP3150	\$ 6,800.00	£ 4,896.00	€ 5,916.00	¥ 54,196.00	Half Dispersion Compensation Unit (-3150 fs ²)