

LASER SPECKLE REDUCING

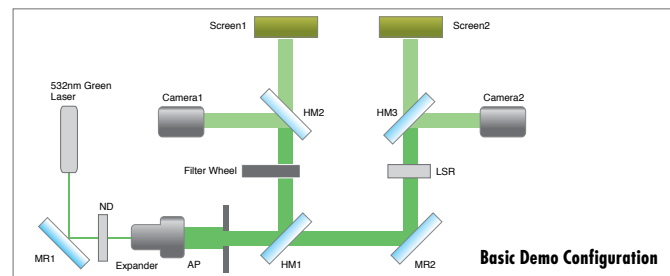
What is Laser Speckle ?

Lasers have the unique characteristic to provide high power and low divergent light. Besides, due to its working principle, laser light exhibits a high degree of coherence that enables, e.g. efficient interference processes. Although this characteristic is widely used in many scientific systems, it leads to a significant drawback for applications that use a light detector. When shining a surface, laser light is scattered by each corrugation points of the illuminated surfaces. Each of these scattered points may be described as secondary coherent light sources. If the corrugation depth is of the order of the laser wavelength, local interferences occur such that a random intensity pattern also known as speckle pattern is observed.

What is This Demo ?

This demo is a comparison demo to evaluate how much it is effective to remove the laser speckle by utilizing our Laser Speckle Reducer (LSR), compared to the way of using conventional optical diffusers. First, Laser beam is splitted into two separate beams with a Half Mirror (HM1). One of the beams goes to the LSR, while the other beam path

does not go to LSR at all. The latter beam path goes to a Filter Wheel instead. The Filter Wheel holds multiple optical diffusers (holographic diffusers) featuring various diffusing angles. Enjoy to rotate the Filter Wheel by yourself and see how much optical diffusers can contribute to the speckle reducing. And also compare the result to the speckle reducing done by LSR ! Note that some filter positions of the Filter Wheel do not hold any optical diffusers, so you can see direct beam exposure on both the screen and camera, as well.



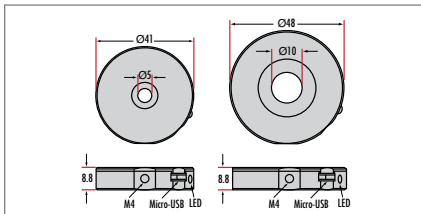
OPTOTUNE LASER SPECKLE REDUCERS



- Ideal for Eliminating Laser Speckle Noise
- Plug and Play with Integrated Drive Electronics
- Multiple Diffusing Angles Available

Optotune Laser Speckle Reducers remove local interferences and significantly reduce speckle noise in laser systems by dynamically diffusing the laser beam. Offering a compact size, integrated drive electronics, and vibration-less speckle reduction, Optotune Laser Speckle Reducers are ideal for beam homogenization, 3D scanning, metrology, microscopy, and interferometry.

Thickness:	8.8mm	Power Consumption:	360mW
Power Supply:	Micro-USB	Operating Temperature:	-20 to 65°C
Operating Voltage:	5VDC	Storage Temperature:	-40 to 100°C

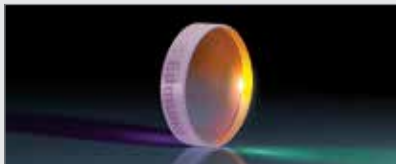


OPTOTUNE LASER SPECKLE REDUCERS

Clear Aperture (mm)	Diameter (mm)	Wavelength Range (nm)	Oscillation Frequency (Hz)	6° Diffusion Angle	12° Diffusion Angle	17° Diffusion Angle	24° Diffusion Angle
				Stock No.	Stock No.	Stock No.	Stock No.
5	41	400 - 700nm	300	#88-390	#88-391	#88-392	#88-393
5	41	700 - 1100nm	300	#88-396	#88-397	*	*
10	48	400 - 700nm	180	#88-394	#88-395	*	*

MORE LASER OPTICS

LASER MIRRORS



HIGH POWER ND:YAG LASER MIRRORS

- Absolute Reflectivity Up To 99.9% at Specified Design Wavelengths and 45° AOI
- Include Certificate of Compliance Documenting Mirror Performance and Coating Lot

LASER LENSES



λ/20 PCX LENSES

- Ideal for Laser and Metrology Applications
- Full Data Package Included
- Precision Fused Silica Substrate

LASER WINDOWS



λ/20 HIGH POWER LASER LINE WINDOWS

- 266nm, 355nm, 532nm and 1064nm Options Available
- Low Auto-Fluorescence
- High Damage Threshold

LASER MIRRORS



LOW LOSS LASER MIRRORS

- Maximum Reflectivity for S and P Polarization
- Ion Beam Sputtered (IBS) Coatings
- High Damage Thresholds

LASER BEAM EXPANDERS



VARIABLE BEAM EXPANDERS

- 1 - 3X and 2 - 8X Continuous Magnification
- Easily Adjust for Laser Beam Divergence
- Compact Galilean Designs with Fixed Housing Length

LASER BEAM EXPANDERS



FIXED POWER LASER BEAM EXPANDERS

- Superior Transmitted Wavefront Characteristics
- Focus Adjustment without Internal Rotation of Optics
- Compact Galilean Designs