Agilent Compact MLC Monolithic Laser Combiner

Laser-Based Illumination System For Microscopy/Cell Biology

Data Sheet

Overview

The Agilent Technologies Compact MLC monolithic laser combiner is a stable, reliable, and economical laser-based illumination system that is ideally suited for fluorescence and confocal microscopy research in cellular biology. The Compact MLC is permanently aligned before leaving the factory, and never needs realignment, making it a reliable light source at multiple wavelengths, with minimal downtime for maintenance. An acousto-optic tunable filter (AOTF) provides fast switching between different combinations of wavelengths and powers.

Space-efficient footprint

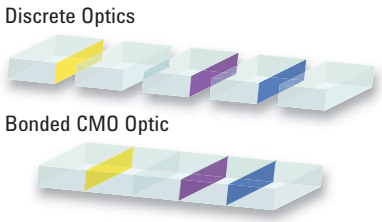
The Compact MLC's significantly reduced footprint is ideally suited for laboratories with limited bench-top space. At just 16" L x 12" W x 7" H (410 mm x 300 mm x 175 mm), the Compact MLC is significantly smaller than alternate systems, giving it the flexibility to fit in virtually anywhere.

Economical performance

A desirable cost/performance ratio facilitates access to consistent on-demand performance across multiple wavelengths to a broader range of research and development organizations.

Stable, reliable and easy-to-use

Agilent's proprietary complex monolithic optic (CMO) technology bundles multiple beam-combining optics into a single, permanently aligned optical structure. The CMO design reduces the number of exposed beam-combination surfaces that are subject to contamination and require subsequent cleaning. The beam is delivered to the microscope by a single-mode, polarization-maintaining fiber-coupled delivery system via a proprietary fixed mounting system that keeps the beam-steering optics permanently aligned.

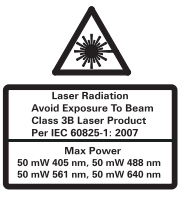


The Agilent CMO technology and fiber delivery system are at the heart of the Compact MLC.

Environmental changes that commonly occur in laboratories, such as temperature, airflow, and bench top vibration, do not affect the Compact MLC. The beam-combining and beam-steering optics in the Compact MLC are fully integrated with the beam delivery architecture to ensure stable, reliable power, day-after-day.

Microprocessor controller

The Compact MLC incorporates a microcontroller that communicates with the AOTF controller and can be used to drive external devices that include a wide array of imaging hardware. Instructional packets that contain a user defined command sequence can be created in the imaging software and downloaded directly to the microcontroller. The Compact MLC can be enabled to respond to incoming trigger signals with a predetermined sequence of laser line outputs and output signals that can be directed to specific hardware devices. In bypassing the host computer, the image acquisition rate can be increased and overall cycle time can be reduced.



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Features	Benefits
Monolithic optical assembly	Temporal and environmental alignment stability – you get more consistent results and longer sample lifetime
Permanent factory alignment	You do not need to deal with maintenance and realignment – you save time
Protected beam-combination optical surface	Critical dielectric interfaces stay free from most contamination – no more cleaning optics
Compact size	Fits neatly into your laboratory space

Specifications

Wavelengths		405 nm	488 nm	561 nm	640 nm
Fiber coupled output power		15 mW	15 mW	15 mW	15 mW
Output polarization extinction		20 dB			
RMS noise (20 Hz-10 MHz)		<1%			
Power stability		±2% over 1 hour at 20 °C			
Modulation	Analog	Rise Time: 1.5 µsec Dynamic Range: 40 dB (10000:1)			
	Digital	Rise Time: 1.5 µsec Dynamic Range: 60 dB (100000:1)			
Fiber output connector		FC/APC (standard), FC/UPC (optional)			
Mechanical dimensions		16.1" L x 11.8" W x 6.9" H			
Electronic interface		USB Analog input (Laser power modulation): 0 – 5 V Digital input (Laser power modulation and external trigger): TTL Analog output: 0 – 10 V			
Software interface		A software development kit (SDK) is available for interfacing the Agilent MLC to third-party software applications			
Operating temperature		+15 to +30 °C			
Storage temperature		0 to +50 °C			
Warranty		12 months			

Optical systems solutions from Agilent Technologies

Agilent offers optical component and assembly solutions for the discriminating researcher. For decades of experience with hundreds of designs and thousands of shipments, coupled with comprehensive testing and support ensure the utmost in precision and reliability under real-world conditions.

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Product specifications and descriptions in this document subject to change without notice.

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