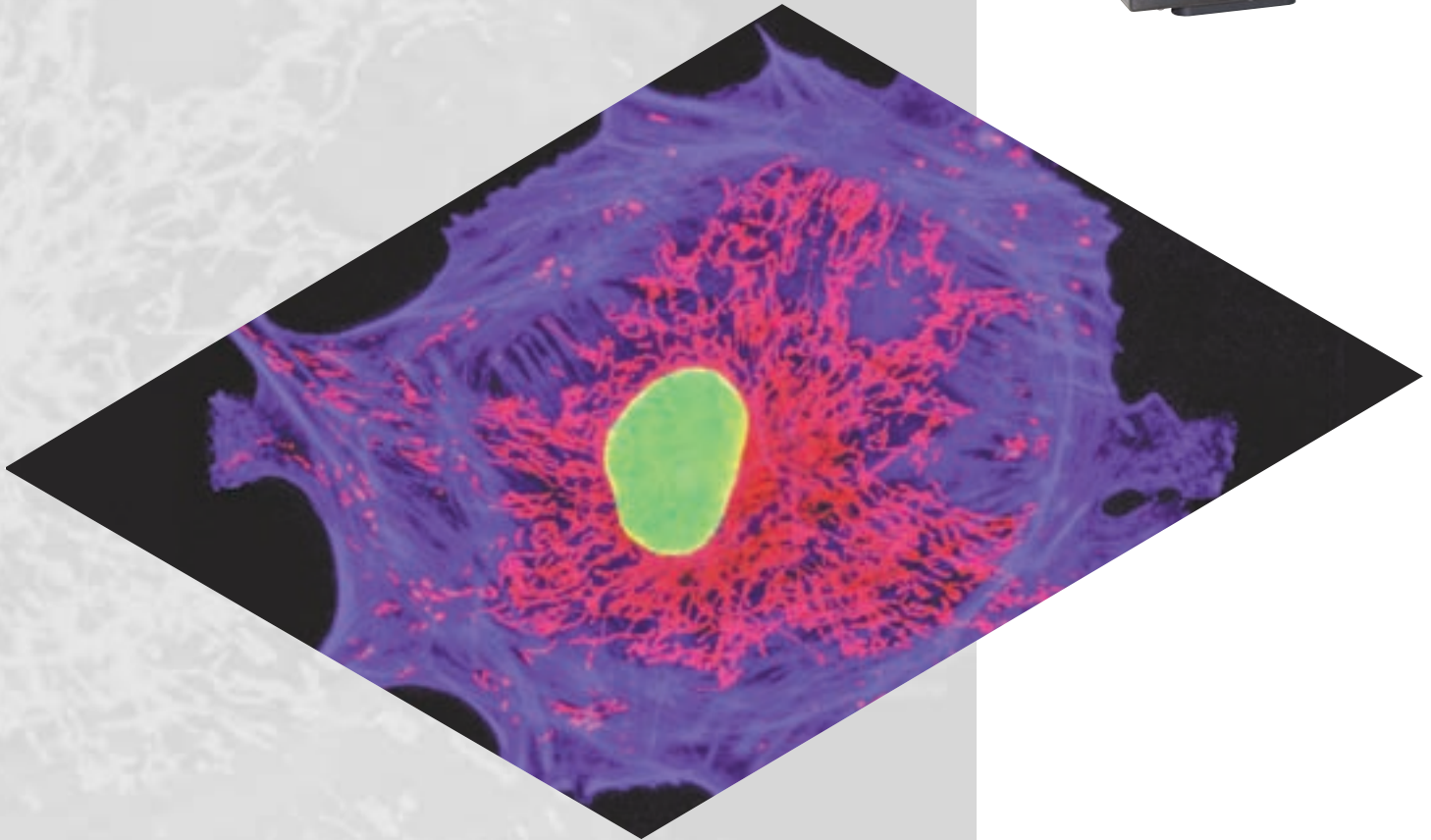


Lumen 200PRO

PRIOR
Scientific

**Advanced Fluorescence Illumination with
Integral Automated Light Attenuation and
High Speed Filter Wheel**



Lumen 200PRO: Superior Fluorescence Illumination

Lumen 200PRO is a high performance, cost effective system for fluorescence illumination designed and manufactured by Prior Scientific. High speed wavelength switching and light attenuation set the Lumen 200PRO apart from any fluorescent illuminator available in the market today. With its integral six position filter wheel for 25mm filters and high speed light attenuator the 200PRO can switch between excitation wavelengths in less than 55ms and can completely open or close the attenuator/shutter in less than 20ms.

An advanced metal halide lamp produces a spectral output that closely mirrors traditional mercury (HBO) style lamphouses with intensity peaks that have a larger bandwidth leading to improved excitation. Each lamp is good for up to 2000 hours, compared to a maximum of 300 hours with a typical HBO system.

Another major step forward is the way that the Lumen 200PRO series delivers the light to the specimen. By mounting the lamp away from direct mechanical contact with the microscope there is a marked reduction in heat transfer to the microscope making it more stable for long term experiments. The liquid light guide that links the lamphouse and microscope also homogenises the light meaning that bulb alignment is no longer critical and evenness of illumination is achieved without any user adjustments. Bulb changes, which already happen much less frequently, now take significantly less time to complete.

SIX POSITION HIGH SPEED FILTER WHEEL

Powerful 200W Illumination

The 200W metal halide lamp gives a similar spectral output to more traditional (HBO) mercury vapor lamps (*please see spectral output graph below). This is a unique low pressure bulb that eliminates problems associated with arc wander.

Long Life Lamp - Up to 2000 Hours

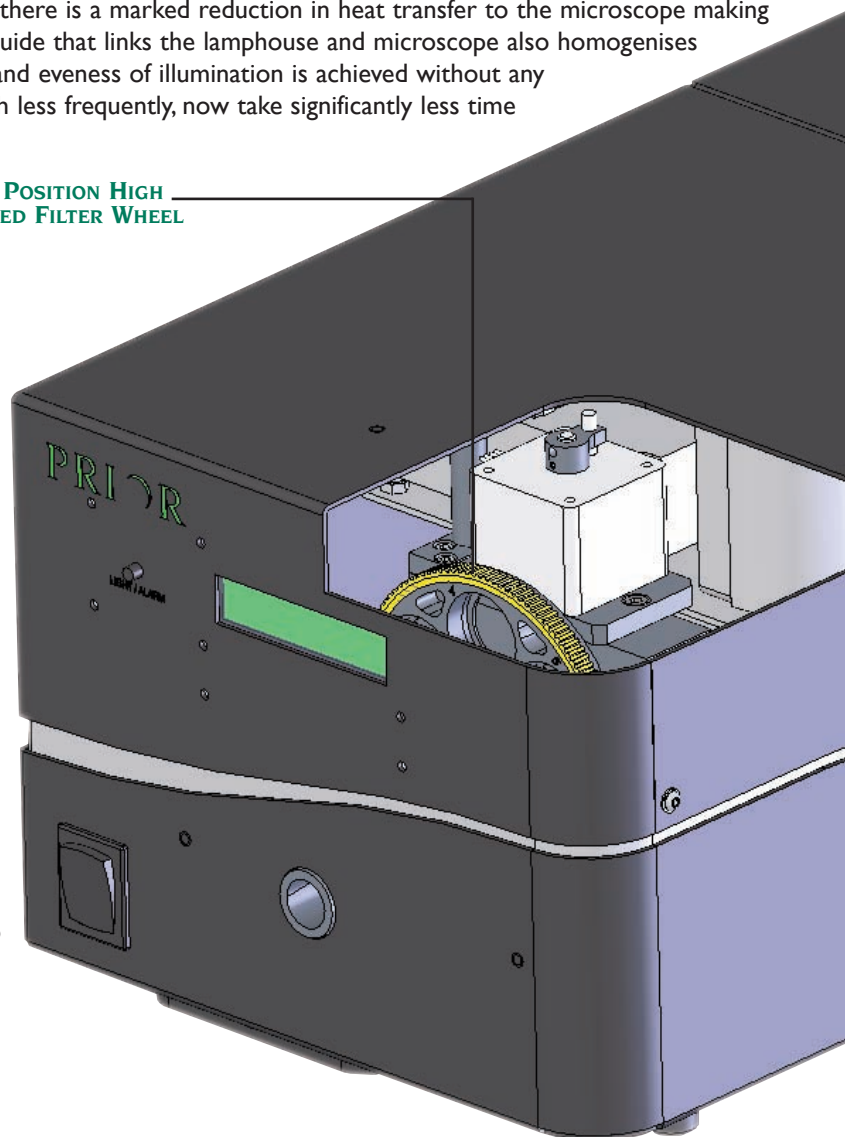
The metal-halide lamp is safe for use for up to 2000 hours. Sophisticated electronics mounted on every Lumen 200 lamp monitor the number of hours used and warn the user through both a visual and audible alarm, when lamp replacement is necessary.

Easy Lamp Replacement

Unlike mercury vapor lamps, the lamps used in the Lumen 200 system require no precision arc alignment for them to provide bright and even illumination. The lamps are pre-centered, making lamp changes take only a few minutes.

Internal Six Position Filter Wheel

Removing the top cover of the L200PRO provides ample space for quick and easy access to the six position filter wheel. An additional feature of the L200PRO is the automatic shut down input which allows the user to program the unit to shut off automatically after an experiment is completed, potentially increasing overall lamp life by 30% or more.



Flexible Liquid Light Guide

A highly efficient two or three meter liquid light guide delivers full spectrum illumination. Coupling adapters are available for most modern research microscopes.

Low Heat Transfer

By mounting the Lumen 200 remotely from the microscope stand the amount of heat transferred is significantly lower. This aids stability and helps reduce drift due to thermal expansion in long term time lapse experiments.

CONTROLLED VIA PRIOR PROSCAN™,
OPTISCAN™ OR PRIOR PCI II



Stabilized Output

The Lumen 200 features a stabilized DC power supply with a variation in output of < 1% at 27KHz. Products that utilize AC or non-stabilized power supplies, or high pressure lamps, are inherently prone to variances in intensity. The unique low pressure bulb eliminates problems associated with arc wander.

Shutters & Attenuation

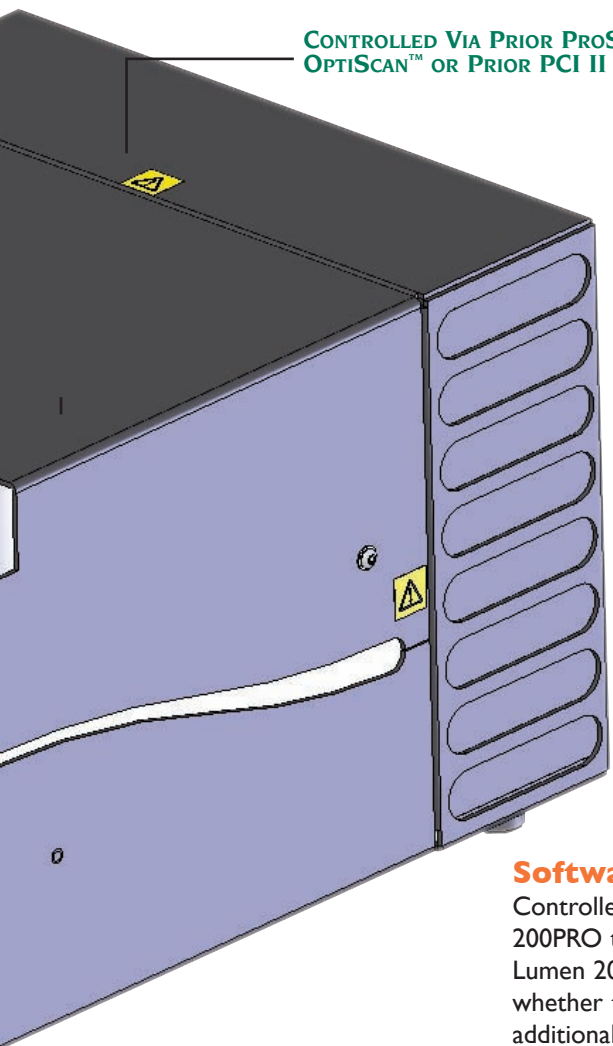
The simple, robust and efficient design of the shuttering light attenuator provides both high speed and reliability. The less than <20 ms opening and closing speed will help to extend live cell studies by minimizing the toxicity associated with photobleaching. With only one moving part the stepper motor driven shutter should provide years of reliable un-interrupted service.

Software Compatibility

Controlled by either the Prior ProScan™, OptiScan™ or PriorPCI II makes adding the Lumen 200PRO to existing code controlling Prior Scientific automation equipment quick and easy. The Lumen 200PRO's internal filter wheel responds to existing standard filter wheel commands whether through the DLL or via ASCII commands, and light intensity is controlled with one additional command.

High Speed Motorized Filter Wheel

The Lumen 200PRO features a built in, six position filter wheel compatible with all standard 25mm diameter filters for automated control of excitation wavelength. The unit is driven by the Prior range of ProScan™, OptiScan™ and PriorPCI II advanced motor controllers allowing it to be combined with the highest performance scanning stages and focusing devices available. By removing the filter wheel and shutter from direct contact with the microscope stand problems of vibration, heat transfer and long settling times are practically eliminated.

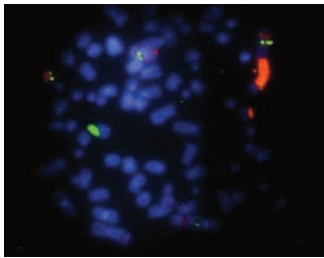


Lumen 200PRO Features

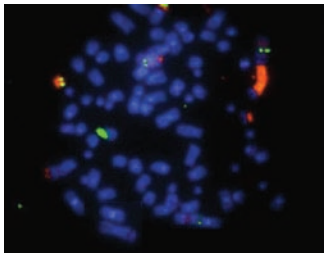
- 200W metal halide lamp
- Up to 2000 hours lamp life
- Fast and easy lamp changes
- No complex re-alignment required
- Reduced heat transfer giving greater stability
- Adapters for most modern research microscopes
- Higher output than traditional light sources
- DC power supply ensures stable output
- Internal motorized six position filter wheel
- Fast selection of excitation wavelength
- No filter wheel vibration to blur images
- Computer controlled light attenuation & wavelength switching
- Driven by ProScan™, OptiScan™, and Prior PCI II controllers
- Motorized variable aperture shutter
- Open and close shutter in <20ms
- Switch between adjacent filters in <55ms

Lumen 200PRO Performance Data

One of the common problems with the conventional fluorescence microscope light source is optimizing and maintaining its proper adjustment to provide even illumination over the whole field of view. Uneven illumination becomes much more of a problem when using digital imaging. This is because contrast stretching used to bring out the signals from the background also enhances uneven illumination across the image. Note how the chromosomes in the images taken using a conventional lamp become darker around the periphery of the image, the red signal on the left is nearly lost altogether.

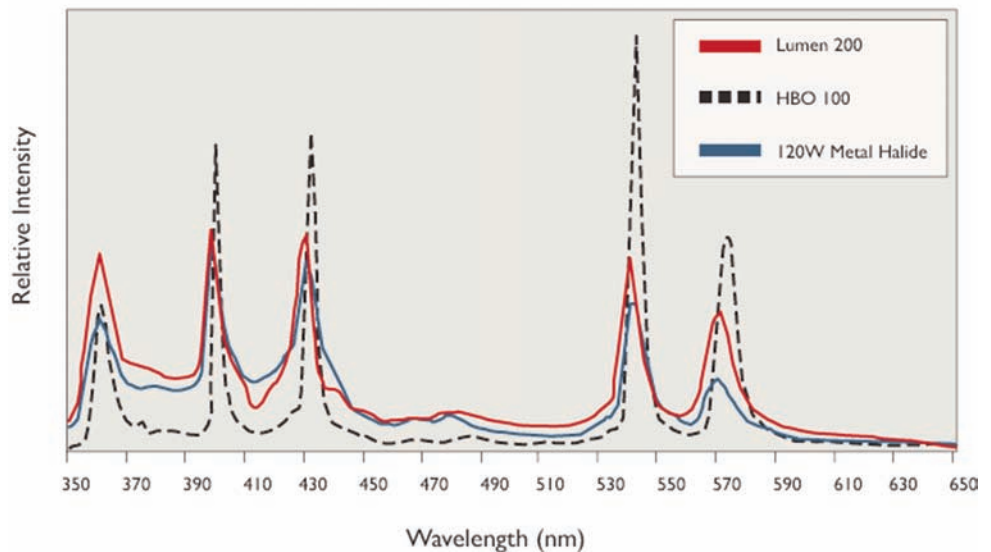


Sub optimal illumination with conventional lamp



Even illumination with Lumen 200

Lumen 200 Spectral Output



CERTIFICATE NO: FM 61600
STANDARD: BS EN ISO 9001:2000



ISO 9001:2000
FM 83854

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Specifications subject to change without notice.

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