

## Optical Shutters


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[Lambda SC](#)
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Filterwheels
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[Lambda 821](#)
[Lambda OBC](#)
[Lambda VF-5™ /  
VF-1™ / VF-10](#)
[Lambda VF-1  
Edge™](#)
[Lambda DG-4/DG-5  
Plus](#)
[Lambda 10-3](#)
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## Lightsources

[Lambda HPX LED](#)
[Lambda HPX-L5  
LED](#)
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TLED/TLED+](#)
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Adapters & OEM  
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**Lambda HPX**

Liquid Cooled LED Light Source

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The Lambda HPX represents the latest generation of liquid-cooled high-output LED light sources. Designed around a single 90W 4.25 mm LED die, the Lambda HPX provides light output comparable to a 200W xenon arc lamp. A quiet, vibration-free liquid cooling head (pre-filled at the factory) allows us to maintain the low junction temperatures required to reach the manufacturer's projected minimum bulb life of 60,000 hours. (The HPX is expected to retain 70% of its light output after 60,000 hours.) The lightweight precision-machined LED head is designed to mount directly on the epi port of a microscope using an included microscope adapter (specify at time of order). This affords the maximum amount of light coupled directly to the scope, without the losses associated with a liquid light guide.

Because LEDs exhibit color shift with current change, the Lambda HPX was designed to dim the LED using either PWM or current control. PWM will be preferable for most applications, and allows the LED to run cooler. PWM switching is at 28 kHz, high enough for use with most high speed cameras. For those with applications intolerant of pulsed output, dimming via current control is also available. PWM and current information are conveniently displayed on the front panel display, and are manually selectable via control knobs. Integral shuttering time is 10 microseconds to turn on and off.

PWM can also be controlled externally via analog input. TTL input and output allows for triggering from either software or directly from another device such as a camera or digital IO board. The LED cable, and cooling lines are easily removable from the chassis with no-drip quick connectors. This allows for easy set up and routing of cables