

LAMBDA 10-3 OPTICAL FILTER CHANGER



The **Lambda 10-3** is the latest generation of Sutter's high performance filter wheel changers. The controller offers faster switching times, synchronous independent control of up to 3 filter wheels and 2 shutters, and expanded communication interface options. Recent advances in motor technology allow the **Lambda 10-3** to achieve switching times of 40msec between adjacent filters. In addition, the controller commands can now be accessed via USB as well as serial port and keypad interfaces.

The **Lambda 10-3** controls a variety of standard Sutter filter wheels including the popular 10 position 25mm wheel, a lighter 4 position 25mm wheel, a 10 position 32mm wheel, 5 position 50mm wheel, and a compact belt-drive 4 position wheel. There are seven speed settings available to optimize the

rate of movement in accordance with the load of the wheel. The **Lambda 10-3** can operate up to 40msec switching time with the traditional 25mm filter wheel as well as our newer, high-speed 32mm version. The 4 position wheel (LB10-NWHS4) provides additional speed and can achieve switching times of less than 33msec. Nearly all of our filter wheels employ a direct drive system. This design eliminates problems with belt slippage and backlash, assuring that our wheels are exceptionally robust.

In addition to filter wheels, the **Lambda 10-3** controller supports our stepper-motor controlled **SmartShutter™** as well as the Uniblitz® shutter. Either shutter can be mounted directly onto the wheel, providing a compact wheel/shutter package for systems with mounting constraints.

Both shuttered and non-shuttered filter wheels can be installed directly on the microscope in a number of locations: excitation, emission, Keller ports, and the trinocular head. Up to two excitation and/or neutral density filter wheels can be used with the **Lambda LS** xenon light source and liquid light guide, in vibration sensitive systems. The **SmartShutter™** can be mounted independently from the wheel in any location in the light path (including the **Lambda LS** and **Lambda DG-4/DG-5**), and driven in a standalone configuration by the **Lambda 10-3** controller. The microscope specific adapters necessary for any configuration of wheels and shutter are listed in the Microscope Adapters section of the catalog.

The **Lambda 10-3** commands are a superset of the **Lambda 10-2**, thus integrating all previously available features into the new design. Additional commands are incorporated to access the third wheel as well as the special **SmartShutter** features. These configurations can be programmed through the keypad making it easy to use the previous shutter commands to access the **SmartShutter** specific functions such as the neutral density or the 'soft' shutter mode.

Filter selection can be made directly from the keypad or from a computer via the serial or USB port. The controller determines the shortest route to the selected filter and an acceleration/deceleration algorithm minimizes vibrations during the movement of the wheel. Internal sensors ensure correct filter positioning and current filter position is displayed on the front panel. The serial port accepts RS-232 level signals through a DB-9 connector. USB input is made through a standard connector and can be directly connected to a PC USB port. The **Lambda 10-3** USB interface supports multiple simultaneous USB devices, allowing a user to run in tandem as many units as they have USB ports.

The universal power supply will automatically switch to accommodate the line voltage - no user adjustment is required. An optional liquid light guide is available for applications requiring absolute vibration isolation, and/or spatial illumination uniformity.

SPECIFICATIONS > LAMBDA 10-3

Dimensions of Control Box

8.2 in x 5.9 in x 5.1 in
14.9 cm x 20.8 cm x 13 cm

Weight

20lbs
11kg

Electrical

120/240 Volts
50/60 Hertz power line
75 Watts max



FEATURES**> LAMBDA 10-3**

40msec between adjacent filters
(10 position wheel)

31msec between adjacent filters
(4 position wheel)

Controls three wheels and up to
two optional shutters

Can accommodate *SmartShutter*
and Uniblitz® shutter

Command set compatible with
Lambda 10-2

Automatically detects installed
hardware

Serial and USB interfaces

Can control a variety of 25mm,
32mm & 50mm wheels

Chopper drives

Universal power supply