

Lambda 10-3

High Speed Filter Wheel

SUTTER INSTRUMENT



The Lambda 10-3 is the latest generation of Sutter's high performance filter wheel changers. The controller now offers faster switching times, synchronous independent control of 3 filter wheels and 2 shutters (or 2 filter wheels and 3 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, serial, parallel, 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. The embedded controllers automatically detect the equipment installed and the source of the external commands, so there are no jumper wires or switches to set. 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. Each wheel will accommodate filters from 1 to 9mm in thickness, allowing multiple filters to be used in each position. For instance, this allows users to insert a neutral density filter along with an interference filter in a single position. We have designed the body of the filter wheel with a trap to eliminate light scatter. For added stability, non-emission filter wheels come with a sturdy support stand and 12 inch rods. In addition to filter wheels, the Lambda 10-3 controller supports our patented 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 stand-alone configuration by the Lambda 10-3 controller. The microscope specific adapters necessary for any configuration of wheels and shutter are available.

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, parallel, 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 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.

FEATURES

- As fast as 40msec between adjacent filters (10 position wheel)
- As fast as 31msec between adjacent filters (4 position wheel)
- Can control three wheels and two shutters, or two wheels and three shutters
- Can accommodate SmartShutter™ and Uniblitz® shutter
- 7 speed settings to optimize movement
- Command set compatible with Lambda 10-2
- Automatically detects installed hardware
- Serial, parallel and USB interfaces
- Serial and USB interfaces
- Can control a variety of 25 mm & 32 mm & 50mm wheels
- Chopper drives
- Universal power supply

SPECIFICATIONS

Dimensions

Control Box 14.9 cm x 20.8 cm x 13 cm
Filter wheel 13cm x 13cm x 6cm

Weight 11kg

Electrical 115/230 V ;50/60 Hz power line
75 W max.

SYSTEMS

Controller

LB10-3 Includes one Lambda 10-3 controller unit, serial and USB cables, power cable and manual

25mm Filter Wheels – 10 positions

LB10-NW 10 positions 25mm filter wheel without shutter
LB10-NWIQ 10 positions 25mm filter wheel with SmartShutter™
LB10-NWS 10 positions 25mm filter wheel with Uniblitz® shutter
LB10-NWE 10 positions 25mm filter wheel set up for emission

25mm Filter Wheels – 4 positions

LB10-WHS4 4 positions 25mm filter wheel without shutter
LB10-WHS4IQ 4 positions 25mm filter wheel with SmartShutter™
LB10-WHS4E 4 positions 25mm filter wheel set up for emission

25mm Dual Filter Wheels

LB10-WD Back to back mounting of two 25mm filter wheels without shutter. No drop-in filter holders
LB10-WDIQ Back to back mounting of two 25mm filter wheels with SmartShutter™ and one slide-in filter holder
LB10-WDS Back to back mounting of two 25mm filter wheels with one Uniblitz® shutter and one slide-in filter holder

32mm Filter Wheels – 10 positions

LB10-W32 10 positions 32mm filter wheel without shutter
LB10-W32IQ 10 positions 32mm filter wheel with SmartShutter™
LB10-W32S 10 positions 32mm filter wheel with Uniblitz® shutter

50mm Filter Wheels – 5 positions

LB10-W50 5 positions 50mm filter wheel without shutter

Specialty Wheels

LB10-W12 10 positions 12.5mm filter wheel without shutter
LB4-W Belt drive 4 positions 25mm filter wheel without shutter

SmartShutter™ systems see on SmartShutter™-page.

Mounting Adapters for Nikon, Zeiss, Leica and Olympus microscopes are available.