

Lambda 10-2 OPTICAL FILTER CHANGER

SUTTER INSTRUMENT



The Lambda 10-2 is the ideal choice for researchers whose applications are intolerant of electrical noise. The low-noise linear electronics of the controller assure that only DC voltages are present on the motor windings when the wheels are not moving. The Lambda 10-2 is capable of independently operating up to two filter wheels and two Uniblitz® shutters. The reliable, smooth operation of the Lambda 10-2 has made it highly suitable for research applications involving fluorescence microscopy, ratio imaging, spectrophotometry, and visual physiology. The controller electronics are designed around three embedded chips: one slave for each wheel and a master for control and communication. The Lambda 10-2 system can hold up to ten optical filters (25mm in diameter and up to 9mm thick) which are easily loaded through an access port on the housing. Additional filters (e.g. heat and/or neutral density filters) may be inserted manually at two other locations in the optical path. The optical ports on both sides of the unit are internally threaded as C-mounts (32 threads per inch).

When mounted in an upright position, the center of the optical port can be positioned from 11cm to 53cm above the mounting surface. Slide-in filter holders are optionally available for inverted configurations. A second wheel can be added to the system with no need for additional mechanical or electronic changes. Eight user selectable speeds are provided. Filter to adjacent filter time can be set from 55 to 1200msec, depending on the number and the weight of the filters mounted in the wheel. Integral shutter drivers will open the optional shutter in 10msec. The use of a direct drive stepper-motor with advanced microstepping technology and intelligent acceleration and deceleration algorithms assures the fastest possible moves for a given inertial load, while minimizing vibrations. The Lambda 10-2 consists of a 10-position filter wheel, a rack mountable controller, a support base and mounting rods, a controller/filter wheel interface cable, parallel and serial interface cables, two drop-in filter holders, spanner wrench, and manual. Microscope adapters for most Nikon, Olympus, zeiss, and Leica scopes can be purchased separately. An optional liquid light guide output is available for applications requiring absolute vibration isolation, and/or uniform spatial illumination. The two meter long guide mounts directly onto the output port of the wheel. Transmission through the guide is better than 70% from 375nm to 575nm. Adapters to connect the light guide to your microscope port are available as an option.

FEATURES

- 55msec between adjacent filters
- Parallel and serial interfaces
- Simultaneous control of two wheels
- Dual integral shutter drivers
- Linear power supply

OPTIONS

- Additional wheel
- Built-in shutter
- Dual wheels mounted in series
- Slide-in filter holders
- Microscope mounting adaptors
- Table-top controller box
- Liquid light guide

OTHER MODELS

The **Lambda 10-232**, was designed to remedy the problem of vignetting that may occur with a 25mm filter format in certain microscope systems. The system features the same **Lambda 10-2** controller but includes a ten position wheel that accommodates 32mm diameter filters, up to 9mm thick. The best filter to adjacent filter switching speed in this system is achieved in 75 msec. A shutter for the system is optionally available. A T-mount format is used for mounting the wheel onto your microscope.

OEM wheels available

For OEM applications, the **Lambda 10-2** can readily be modified to meet your specific requirements. By utilizing the 10-2 controller to drive customized wheels, Sutter can provide an economical solution to your OEM design specification. To date Sutter has made custom 2, 3, 4, 5, 10 and 12 position wheels and has designed for 50mm, 32mm and 25mm filters. Sutters technical staff will be happy to discuss with you special application requirements.

SPECIFICATIONS

Filter Diameter	25mm	Dimensions	Controller 41cm x 28cm x 9cm	Weight	11kg
for Lambda 10-232	35mm		Filter wheel 13cm x 13cm x 6cm	Electrical	115/230 V; 50/60 Hz power line

SYSTEMS

- LB10-2** Includes one 25mm filter wheel without shutter, support base with mounting rods, rack mount controller unit with wheel drive cable, parallel and serial interface cables for connection to PC, two drop-in filter holders, spanner wrench 10 blanking discs, power cord, and manual
- LB10-2S** Same as above with Uniblitz® shutter assembly and two slide-in filter holders
- LB10-232** Same as LB10-2 except with 32mm, T-mount threaded filter wheel (no drop-in filters) and modified 10-2 controller
- LB10-232S** Same as LB10-232 except with Uniblitz® shutter, (no drop-in or slide-in filters) and modified 10-2 controller
- LB10-250** Same as LB10-2 except with 50mm, 5 position filter wheel

25mm Filter Wheels – 10 positions

- LB10-NW** 10 positions 25mm filter wheel without shutter
- LB10-NWS** 10 positions 25mm filter wheel with Uniblitz® shutter
- LB10-NWE** 10 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-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-W32S** 10 positions 32mm filter wheel with Uniblitz® shutter

50mm Filter Wheels – 5 positions

- LB10-W50** 5 positions 50mm filter wheel without shutter

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