



100 MILLION CYCLE LIFE

8 MSEC OPEN AND CLOSE TIMES

CONTINUOUS OPERATION AS HIGH AS 40 Hz

NEUTRAL DENSITY CAPABILITY



(Shown with LB10-B/IQ controller and optional stand)

SMARTSHUTTER™ STEPPER-MOTOR DRIVEN SHUTTER

The **SmartShutter™** is designed to complement our growing line of optical products and sets a new standard for shutter performance and reliability. In the traditional shutter design there are two or more "leaves" that rub against each other. Given time, the blades will wear down, bind, and the shutter will fail to open. The **SmartShutter** is designed with only one moving part, which virtually eliminates the effects of wear and markedly improves performance. In the traditional shutter design there is an additional issue of the leaves binding in extreme temperature conditions. To solve this problem our shutter blade has the ability to perform well under very high temperature conditions and extending the life of the shutter.

The **SmartShutter** incorporates a new high-performance motor drive and precision stepper-motor to provide added control and durability. Traditional shutters use a solenoid actuator requiring a high initial opening voltage for rapid opening of the shutter. This can overheat or burn out the coil of the shutter if the shutter is opened too frequently. With our microprocessor controlled motor/wiper design, we can control the trajectory of each move and

optimize the motion of the blade for speed or for smoothness. The **SmartShutter**, in either the 25mm or 35mm version, operates with open/close times of 8msec from the command (3msec from the start of motion). Since our robust design does not rely on over-driving the windings, we can achieve continuous operation at frequencies up to 40 Hz for the 25mm version, and 20 Hz for the 35mm model. Because the shutter blade is stopped by the action of the motor rather than mechanical stops, **SmartShutter** units tested for over 100 million cycles show no sign of failure.

The microprocessor-based controller provides exceptional versatility and is adaptable to various modes of operation and function. The **Smart-Shutter** can be programmed for a variety of movement profiles or to produce a variable aperture by determining the degree of shutter opening. When used in our **Lambda LS** xenon light source and coupled with a liquid light guide, the shutter acts as a programmable neutral density filter. In addition, while the impulse of our shutter is minimal, a "soft" action mode can be selected to decrease vibration.

CONTROLLER

LB10-B/IQ

Includes one **Lambda 10-B** control unit, serial, CIQ-2, and USB cables, power cable and manual

LB-SC

Includes one **Lambda SC** control unit, serial and USB cable, power cord and manual

SMARTSHUTTER™

IQ25-W

25mm **SmartShutter** with housing to fit filter wheel

IQ25-SA*

25mm **SmartShutter** with stand-alone housing

IQ25-LS

25mm **SmartShutter** with housing to fit **Lambda LS**

IQ25-DG

25mm **SmartShutter** with housing to fit **Lambda DG-4/DG-5**

IQ35-W

35mm **SmartShutter** with housing to fit filter wheel

IQ35-SA

35mm **SmartShutter** with stand-alone housing

IQ50-SA

50mm **SmartShutter** with stand-alone housing

* Where vignetting may be an issue, we recommend the 35mm shutter.

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RoHS Compliant



SUTTER INSTRUMENT

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