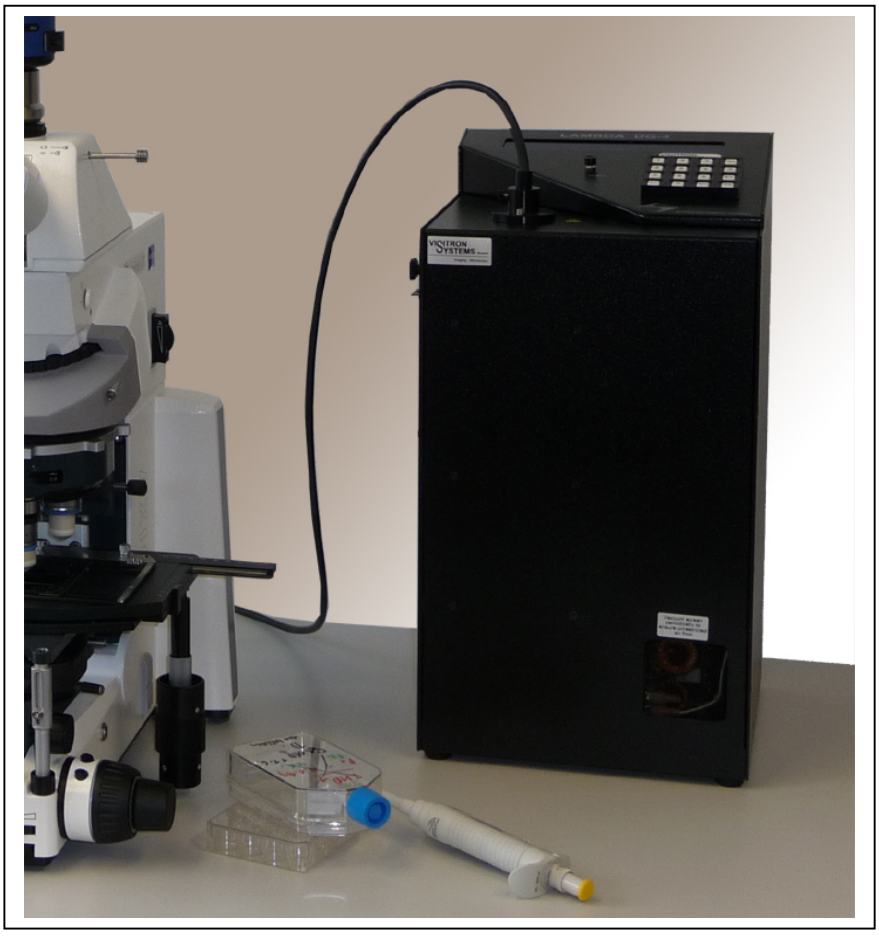
Intelligent BioMed-Solutions from Visitron Systems GmbH

Fluorescence Illumintion System

DG-4 High Speed Wavelength Switcher

for Fluorescence Illumination

The DG-4 wavelength switcher offers unprecedented speed and versatility for experiments requiring rapid light wavelength switching. It offers all the advantages of interference filter-based systems, yet eliminates the temporal constraints imposed by filter switching devices. Switching between any two wavelengths is achieved in less than the 1.2msec vertical retrace period of a video signal, allowing you to perform realtime video imaging. For dual wavelength ratio imaging studies it enhances your ability to follow fast changes in ion concentrations by acquiring a ratio pair in two consecutive video frames.



Visitron Systems GmbH **Tel. 089 / 890245-0** **Fax 089 / 890245-18**
Gutenbergstr. 9 , D-82178 Puchheim **www.visitron.de** **Info @ Visitron .de**

How it works:

This unique optical design of the DG-4, is based on dual scanning galvanometers. The wavelength selection is done by interference filters. The DG-4 can host up to four 25mm interference filters. The light coming from the 175W xenon arc lamp is focused on the first galvanometer mirror. The light is then directed, via a parabolic mirror, through one of the optical channels that may contain an interference filter. The light passing through the filter is collected by another parabolic mirror and sent to a second scanning mirror that directs it to a liquid light guide. The light guide can be coupled to the illumination port of an instrument (e.g. epi illumination port of a microscope). The intensity of the output can be modulated by controlling the relative orientation of the two scanning mirrors. Thus this system can provide narrow band excitation at selected wavelengths over a range of intensities or can rapidly urn off the light source. Dwell time at any wavelength is arbitrarily set by the user. Transitions are achieved in less than 1.2msec.

FEATURES:

Complete system for wavelength switching:

- A built-in 175 Watt ozone-free xenon lamp takes the DG-4 a complete excitation system, and eliminates problems associated with device integration.
- Four can easily be installed in the DG-4 with an additional standard neutral density filter inserted in the common path of the light.
- The light guide output from the DG-4 provides the additional benefit of vibration isolation from your microscope
- Integral shuttering and filtering
- The DG-4 incorporates a high speed shutter with open/close times of 500us. The shutter can be enabled between filter transitions to prevent light transmission through intermediate filters. Integral neutral density filtering
- Neutral density filtering is achieved under program control by offsetting the output galvanometer such that light is not centered on the liquid light pipe. Up to 15 logical filters can be defined with this method. Due to the scrambling effect of the light pipe, the output still has excellent uniformity.
- Direct insertion of neutral density optical filters is also acceptable in the filter holders at any of the four optical channels. A final optical filter can also be placed in the exiting light path which will reduce the light output from all 4 optical channels. Two outputs for monitoring filter position
- A 4 bit TTL signal transmits the current optical channel (filter) position.
- A digital-to-analog converter (DAC) output produces a voltage showing which filter is in use.

Methods of control:

- Direct Computer Control via Parallel or Serial Interface

Lamp Type:

- 175 Watt ozone free xenon arc bulb, pre-aligned (standard)