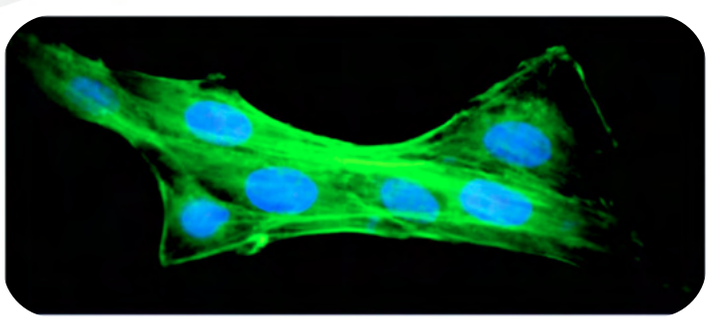
OPTOLED Light Source

DATASHEET

Instantaneous wavelength switching

Ultra stable, ultra bright, modular illuminator for epifluorescence and transmitted light microscopy, macroscopy & optogenetics.

High intensity LEDs are now available across the visible spectrum extending into both the ultraviolet and infrared. Their fast switching, long life, high stability, variable intensity and lower power consumption make them ideal for both fluorescence and transmitted light microscopy. The OptoLED range is constantly evolving with new, bright exciting LED colours to replace dated mercury burners. Our modular, flexible couplings allow compatibility with arc lamp and laser illumination sources.



KEY BENEFITS

- High intensity
- Optical feedback for near perfect intensity and wavelength stability
- Instantaneous vibration-free switching
- Long life (should never need replacing)
- Variable intensity – no need for ND filters
- Minimal unwanted infrared (heat) output
- Fully modular system accommodates an ever-expanding range of filters and mirrors

APPLICATIONS

- Multi-wavelength fluorescence microscopy
- Visible/IR transmitted light microscopy
- Optogenetics using fibres or epi-illumination
- Macro fluorescence imaging/Optical Mapping
- Flash photolysis
- High speed Fura-2 calcium imaging
- New FuraLED coupling available

CAIRN RESEARCH

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Near perfect stability

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SUMMARY

The Cairn OptoLED is capable of driving two LEDs independently, over a wide range of currents. For pulsed illumination, switching times of less than 100 nanoseconds are achievable, and digital control inputs to support this mode of operation are provided. The standard operating current range, which is set either by a front panel control or by an external control voltage, is 0-5 amps (A). In addition, digital inputs are provided to switch each LED on and off independently, with rise and fall times of less than 100 nanoseconds. Additional sockets are provided to allow synchronisation with the camera to reduce phototoxicity or motion artefacts. Each channel has a meter, which displays the applied current. The Cairn OptoLED also comes with an optical feedback function because although the light output from an LED tends to be more stable than that from other sources, it is somewhat temperature dependent. During pulsed operation with duty cycles of more than a few milliseconds, optical feedback prevents the consequent variation in LED temperature and effective wavelength through the cycle from causing the light output to change during the pulse.

FULL SPECIFICATION

- Typical optical power at specimen available on request
- Fluorescence LED heads available at 340nm, 365nm, 385nm, 405nm, 440nm**, 455nm, 470nm, 490nm, 505nm, 525nm, 550nm**, 565nm, 590nm, 617nm, 627nm
- Single, dual, triple and quad couplings available for Nikon, Olympus, Leica and Zeiss microscopes
- TTL-controlled digital switching and analogue voltage-controlled intensity modulation accessed via BNC connections
- Maximum output current 1A, 2A or 5A, selectable by internal jumper links
- Response time of optical feedback circuit <50µsec
- Optical switching times <100nsec
- Response time to change external analogue input <10µsec
- External analogue control voltage range 0 to+10V

** filtered high power white LED

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