

pE-4000

UNIVERSAL LIGHT SOURCE



ALL WAVELENGTHS INCLUDED

• POWERFUL • EFFICIENT • COMPACT



www.CoolLED.com

CoolLED 

CoolLED pE-4000 – The Universal Light Source

The pE-4000 sets the standard as the universal light source for fluorescence microscopy. Users can operate the system as a simple white light source (replacing a conventional mercury-based light source), or as an advanced, fully-controllable, excitation and stimulation source. The flexibility and extensive functionality of the pE-4000 broadens the range of illumination options in core facilities.

At the centre of the pE-4000 is CoolLED's novel, patent pending, wavelength-grouping concept which offers more power in an efficient system design. Wavelength-grouping ensures optimal compatibility with all single and multi-band filter sets.

WHITE for Simplicity



ADVANCED for Control

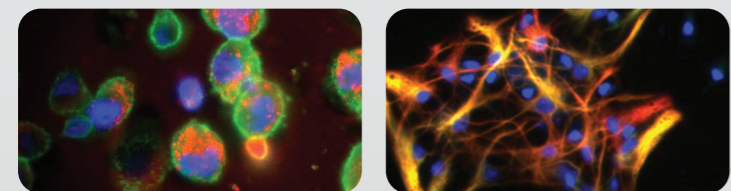


IDEAL FOR MULTI-USER AND CORE FACILITIES

- Simple on/off
- Precise intensity control
- Easy to use, no training required
- Pre-sets allowing lab manager to match white spectrum to existing filter cubes
- Higher contrast images from matched-white spectrum

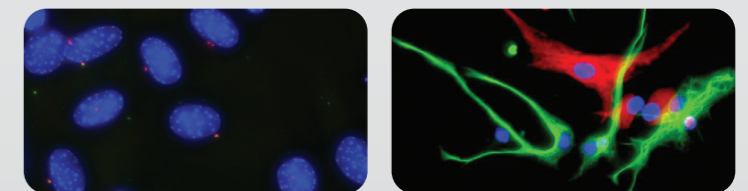
pE-4000 LED SYSTEM

- Excellent field uniformity at sample
- No mercury
- Long Life: 25,000 hours
- No bulb changing, bulb alignment or warm up process
- Quiet operation
- High efficiency
- Wide range of microscope adaptors

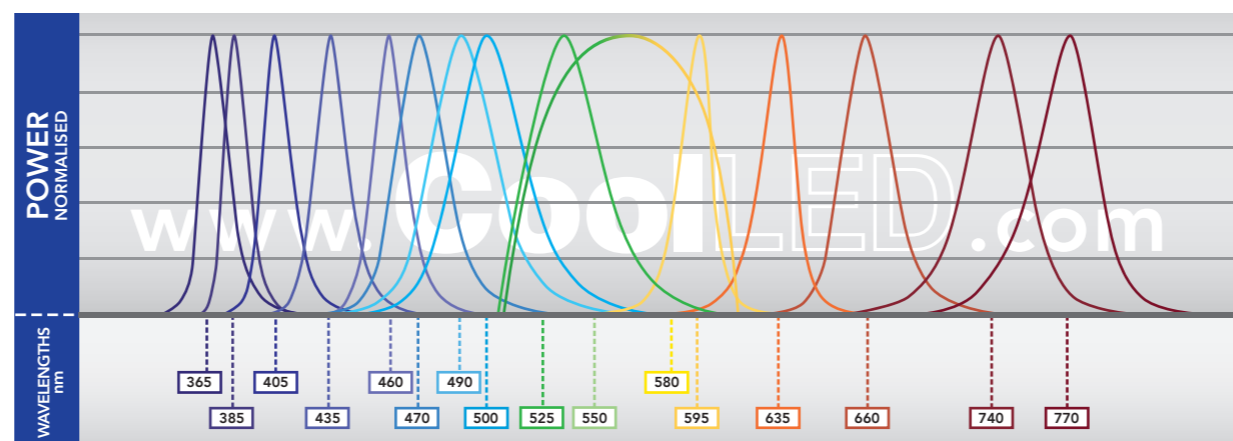


IDEAL FOR ADVANCED RESEARCH

- Individual LED wavelength selection
- Rapid switching between LED wavelengths enables capture of high speed events
- TTL & USB interfaces with imaging packages
- Excitation filters can be fitted in optical path for controlled switching with no moving parts
- Analogue for dynamic intensity control
- Optical feedback for applications requiring higher stability
- Internal function generator for electrophysiology and optogenetics applications
- Compatible with all single and multi-band filter sets



16 SELECTABLE WAVELENGTHS NO MODULARITY • COMPATIBLE WITH ALL FILTER SETS



BROADEST SPECTRUM • BRIGHTEST LEDs



NO MORE MERCURY!



SPECIFICATIONS

- pE-4000 system:** Main unit with complete set of wavelengths, dual function manual control pod, power supply block, mains cable, USB cable
- Light Delivery:** Single liquid light guide or fiber options
- Collimating optics:** Range of collimating optics and adaptors to fit most fluorescence microscopes
- LED Wavelengths:** Wavelengths are divided across 4 channels with each channel having individual control. Power measured at sample plane.

| CHANNEL 1 | | | CHANNEL 2 | | | CHANNEL 3 | | | CHANNEL 4 | | |
|-----------------|------------|-----------|-----------------|------------|-----------|-----------------|------------|-----------|-----------------|------------|-----------|
| Wavelength (nm) | Power (mW) | FWHM (nm) | Wavelength (nm) | Power (mW) | FWHM (nm) | Wavelength (nm) | Power (mW) | FWHM (nm) | Wavelength (nm) | Power (mW) | FWHM (nm) |
| 365 | 15.12 | 12 | 460 | 240.19 | 19 | 525 | 39.00 | 34 | 635 | 123.88 | 16 |
| 385 | 59.39 | 11 | 470 | 192.29 | 20 | 550 | 166.74 | 85 | 660 | 159.01 | 21 |
| 405 | 188.32 | 18 | 490 | 56.00 | 32 | 580 | 166.74 | 85 | 740 | 36.62 | 29 |
| 435 | 138.75 | 16 | 500 | 59.26 | 29 | 595 | 32.52 | 15 | 770 | 15.61 | 28 |

Powers measured at sample plane of research grade microscope using 100% mirror in cube and 10X objectives. (Figures are typical values). Note wavelength settings 550nm and 580nm use single broad, high intensity peak (see spectrum on pages 2-3)

CONTROL & INTERFACE

- Manual:** Dual function manual control pod for White mode or Advanced mode
- Remote:** Via USB for independent on/off and intensity control of each channel. Triggering speed <1ms
Via 4 TTL inputs for independent on/off control of each channel. Triggering speed <20us
Via single TTL for on/off control of manual or software selected channels
Via 4 analogue inputs 0-10V, 0-300kHz for dynamic control of intensity from external analogue signals
- Synch Out:** 4 TTL outputs for each channel – active high
1 TTL output for any channel – active high
- Programmable interface:** 4 TTL outputs for on/off control of peripherals (transmitted light sources, stages etc)
4 analogue outputs for intensity control of peripherals (can be programmed to mirror LED intensities for channel control) 0-10V full scale.
- Function Generator:** Internally generated sine, pulse and ramps for each channel programmed via pod.
- Connectivity:** USB (B type) for PC connection. All other TTL and Analogue inputs/outputs via 25way 'D-type' female connector (optional rear mounting expansion box available for BNC connectivity).
- Imaging Software:** Recognised as 'CoolLED pE-2 peripheral' under common software e.g. Micromanager, MetaMorph, cellSens, NIS Elements, ImagePro, etc.

POWER

- Power requirements:** 110-240Va.c. 50/60Hz, 2.5A
- Power consumption:**
- | | |
|-----------------------------|----------|
| Standby (i.e. no LEDs on) | Max 7W |
| Single wavelength operation | Max 41W |
| Dual wavelength operation | Max 75W |
| Triple wavelength operation | Max 93W |
| Quad wavelength operation | Max 112W |

DIMENSIONS

- Main unit:** 150mm(w) x 220mm(d) x 260mm(h) – Weight 3.5kg
- Control pod:** 154mm(w) x 135mm(d) x 40mm(h) – Weight 0.95kg
- Power Supply:** 164mm(w) x 64mm(d) x 35mm(h) – Weight 0.58kg

TO ORDER

- pE-4000-L-SYS-ZZ** Main unit, control pod, power supply plus cables for use with 3mm liquid light guide
- pE-4000-F-SYS-ZZ** Main unit, control pod, power supply plus cables for use with SMA terminated fiber
- pE-1904** 3mm diameter, 1m long liquid light guide
- pE-1908** 3mm diameter, 3m long liquid light guide
- pE-10400-YYY** Microscope adaptor with collimating optics. To specify microscope code (YYY) see <http://www.cooled.com/Life-Sciences-Analytical/Products/Microscope-Adaptors/>
- Fiber Options** see <http://www.cooled.com/Life-Sciences-Analytical/Products/Accessories/Light-Delivery/> for further information
- pE-4000-EB25D** Rear mounting expansion box for 25way D-type to BNC connectivity
- Specify local power cable (ZZ). 10=Australia, 20=Europe, 30=UK, 40=USA
- Warranty** System: 12 months, LEDs: 25,000 hours

ENVIRONMENT & SAFETY

LED products are more sustainable and energy efficient than conventional light sources. CoolLED's products have the following benefits:

- No Mercury
- Energy Efficient: 80% less power
- Long lifetime
- No bulb replacements
- Reduced risk of eye damage
- No special disposal regulations



CONTACT



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