

pE-300^{opto}

LED Illumination
for Optogenetics

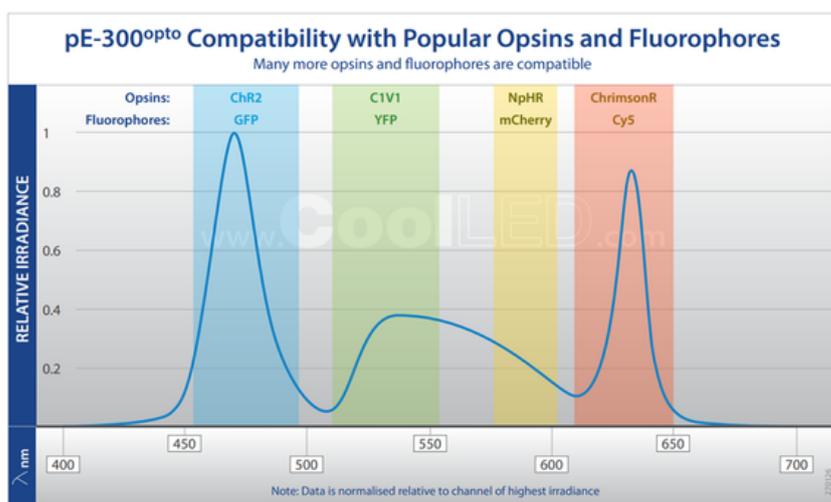


CoolLED 
Simply Better Control

pE-300^{opto}

LED Illumination
for Optogenetics

The CoolLED pE-300^{opto} is a highly controllable LED Illumination System built for neuroscience researchers using optogenetics. High-speed illumination delivers stable and precise stimulation for a wide range of opsins in both ex vivo and in vivo experiments, while also supporting fluorescence imaging for maximum flexibility.



- Compatible with ChR2–ChrimsonR
- Optional interchangeable fibre adaptor for in vivo optogenetics
- Fast, repeatable <10 μ s TTL triggering
- Sequence Runner for programming illumination protocols

Freedom to use a range of opsins

Three powerful LEDs – blue (470 nm), green-yellow (550 nm) and red (635 nm) to match the most widely used opsins, including:

Opsin	Peak Excitation	LED
ChR2	470	470
GtACR1, GtACR2	470	470
Chronos	500	470
C1V1	540	550
Arch, ArchT	566	550
NpHR	589	550
eNpHR3.0	589	550
ReaChR	590	635
Chrimson, ChrimsonR	590	635
CsChrimson, ChR2XXL	590	635
Jaws	632	635

As red-shifted opsins such as ChrimsonR continue to emerge, the pE-300^{opto} is designed with future-proofing in mind, enabling researchers to explore new opsins as they become available.

Choose your application

A liquid light guide output is supplied as standard, making it ideal for ex vivo optogenetics under the microscope. The system also supports fluorescence imaging with commonly used fluorophores including GFP, YFP, mCherry and Cy5, enabling visualisation of fluorescently labelled constructs or combined stimulation and imaging experiments.

For in vivo experiments, an optional adaptor allows a fibre output (either SMA or FC), and the output can be easily swapped in the field. This versatility allows researchers to use the same light source across multiple experimental setups - from in vivo fibre stimulation to ex vivo slice work and imaging.



Run fast stimulation sequences

Dynamic, high-speed multi-opsin stimulation is at the heart of the pE-300^{opto}.

Each LED can be individually controlled via highly repeatable <math><10 \mu\text{s}</math> TTL triggering, while inline filters provide clean spectral separation for multi-opsin protocols. The irradiance of each channel can also be independently adjusted to fine-tune stimulation levels when working with multiple opsins.

For simplified high-speed operation, the Sequence Runner program combines the simplicity of manual control and high-speed TTL triggering. Once an LED and irradiance sequence is specified using the manual control pod, the sequence cycles automatically – with triggering synchronised via the global TTL input of the pE-300^{opto} and a single TTL output from a camera.

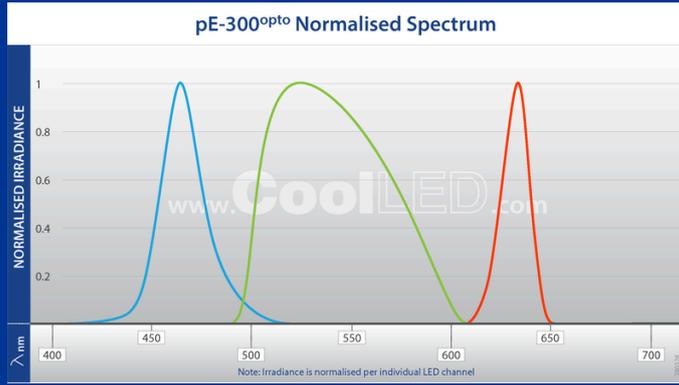
This makes it easy to implement high-speed stimulation without the need for additional control hardware.



Plus all the benefits afforded by CoolLED LED Illumination Systems, such as stability, repeatability and sustainability.

Specification

Due to a programme of continual development, please contact CoolLED (info@cooled.com) for performance data.



To Order

- pE-300-OPTO-L-ZZ:** pE-300^{opto} Illumination System for use with 3 mm liquid light guide. Includes Light Source, Control Pod, Power Supply, three Excitation Filter Holders, cradle & power cable (ZZ)
- pE-1906:** 1.5 m long, 3 mm diameter liquid light guide
- pE-10400-YYY:** Universal collimator for use with a single liquid light guide, and customer specified microscope adaptor
- pE-300-OPTO-F-MODULE:** Interchangeable fibre adaptor

To specify microscope adaptor code (YYY), see Adaptors (www.cooled.com/products/adaptors)
To specify local power cable (ZZ): 10 = Australia, 20 = Europe, 30 = UK, 40 = USA

Control & Interface

- Control pod for operation and access to settings and usage history.**
- Manual:** Manual Control Pod
- TTL:** 3 TTL inputs allow independent channel control. Global TTL input for on/off synchronisation to camera
- Imaging Software:** Integrated into most major software platforms. For further details see www.cooled.com/support/imaging-software
- Connectivity:** USB (C type) for PC connection; TTL inputs via BNC
- Sequence Runner:** Single TTL input to step through user defined sequence. Triggering speed <10 µs at full power
- Light Delivery:** Liquid light guide output as standard, with optional 3 mm liquid lightguide and pE-Universal Collimator. Optional Interchangeable fibre adaptor available

Power

- Power requirements** 100-240 V a.c. 50/60 Hz
- Power Consumption:**
- pE-300^{opto}** At the wall (includes power supply unit consumption)
- Standby:** 2.3 W
- 1 Band (GYR):** 23 W
- 2 Bands (BLU & GYR):** 31 W
- Full white irradiance (3 bands)** 38 W

Dimensions

- pE-300^{opto} Light Source (LLG):** 77 mm(w) x 187 mm(d) x 162 mm(h) – Weight 1.59 kg
- pE-300^{opto} Light Source (Fibre):** 77 mm(w) x 160 mm(d) x 162 mm(h) – Weight 1.59 kg
- pE-300^{opto} Control Pod:** 88 mm(w) x 125 mm(d) x 37 mm(h) – Weight 0.32 kg
- pE-300^{opto} Power Supply:** 167 mm(w) x 67 mm(d) x 35 mm(h) – Weight 0.62 kg
- pE-Universal Collimator:** 44 mm(w) x 86 mm(d) x 44 mm(h) – Weight 0.17 kg

Environment & Safety

LED products help laboratories become more sustainable, saving energy and reducing the carbon footprint when compared with conventional illuminators.

CoolLED's products have the following benefits:

- Mercury-free and laser-free
- Energy Efficient
- Long lifetime
- No bulb replacements
- Reduced risk of eye damage
- Quiet operation
- No special disposal regulations or issues

For more information on how CoolLED products can help you, contact us now:

- +44 (0)1264 323040 (worldwide)
- www.cooled.com
- info@cooled.com

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All data correct at time of publication



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