

## pE-400 Series Quick Start Guide



This Quick Start Guide provides basic information required to install your new pE-400 Series Illumination System.

For additional details and other valuable resources, please see the pE-400 Series User Manual or the CoolLED website at [www.cooled.com](http://www.cooled.com).

## 1. Safety

**Warning:** While LEDs are much safer than the mercury and metal halide lamps they replace, the following precautions **must** be taken when operating your CoolLED Illumination System. Failure to do so may result in permanent injury, damage to property or both.

- Only use the power supply and power cord provided to power the device.
- Never look directly into the light output or attached accessories. The light can permanently damage the eye and may lead to blindness.
- Always ensure the Light Source is securely attached to the microscope before applying power to the device.
- If your CoolLED Light Source must be operated while not attached to a microscope, all personnel must wear appropriate eye shielding and protective clothing. CoolLED strongly discourages using any CoolLED Light Source when not securely mounted to a microscope.

**Warning:** Optical surfaces **must** only be cleaned with specifically designed optical wipes and purpose-formulated optical cleaning solutions. Failure to use optics-specific cleaning products may permanently damage your CoolLED Light Source.

## 2. Parts List

pE-400 Series Illumination Systems include various components necessary to meet the demands of specific microscope installation. At a minimum, your pE-400 Series Illumination System includes the following:



- A pE-400 Series Light Source
- A pE-400 Series Control Pod
- A power supply
- A 1.5 mm Hex Key required for installation

## 3. Installation

The pE-400 Series is available in two light delivery configurations: Direct Fit and Liquid Light Guide. These determine the installation procedure.

Direct Fit and Liquid Light Guide



*pE-400 Series Direct Fit Light Source*



*pE-400 Series Liquid Light Guide Light Source*

## Direct Fit

Attach the Light Source directly to the epi-illumination port of a microscope using a suitable CoolLED adaptor.

### Note:

- The CoolLED adaptor is specified on ordering and will already be installed on your Light Source.
- The exact method of attachment depends on the microscope configuration – please follow microscope manufacturer’s instructions.
- The Light Source may be oriented horizontally or vertically to fit the microscope, provided the minimum clearance distances are maintained.



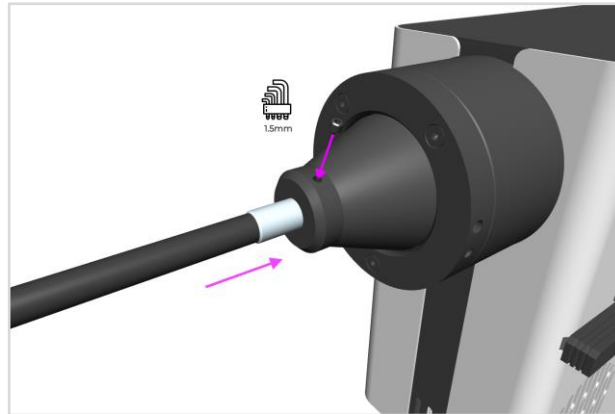
*A pE-400<sup>max</sup> Light Source fitted to a microscope in a horizontal orientation.*

## Liquid Light Guide

Liquid Light Guide configurations accept a 3 mm liquid light guide.

1. Insert a free end of a 3 mm liquid light guide into the Light Source, ensuring that the light guide is fully seated in the output barrel.
2. While holding the liquid light guide securely in place, use the 1.5 mm Hex Key to gently fasten the grub screws found at the output of the Light Source.

**Warning:** do not over-tighten the adaptor retention grub screws. Over-tightening may damage the liquid Light guide or the Light Source and result in an unsafe or poorly performing installation.



*A pE-400 Series Light Source with liquid light guide retention grub screw shown.*

3. For microscopes that permit liquid light guides directly, insert and secure the free end of the liquid light guide as per the microscope manufacturer's instructions.
4. For microscopes that do not permit direct liquid light guide insertion, the free end of the liquid light guide must be fed into a collimator such as [CoolLED's pE-Universal Collimator](#).

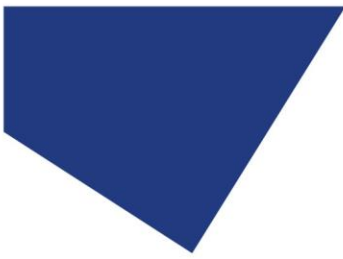
## 4. Electrical Connections

The pE-400 Series Control Pod and Power Supply must be connected to the Light Source using the following steps.

1. Ensure the Power Switch on the back panel of the Light Source is in the off position.
2. Connect the Control Pod to the Light Source by inserting the Control Pod connector into the 'Pod' socket marked on the rear of the Light Source.
3. Connect the Power Supply to the Light Source by inserting the Power Supply connector into the 'Power' socket marked on the rear of the Light Source.



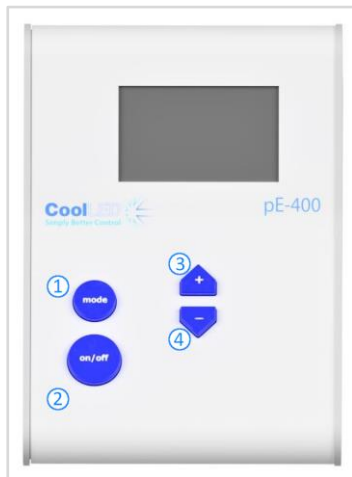
*The back panel of a pE-400<sup>max</sup> Light Source showing the 'Pod' and 'Power' sockets.*



## 5. Control Pod Operation

Once your pE-400 Series Light Source is installed and connected, the following steps initiate illumination.

### pE-400 Control Pod

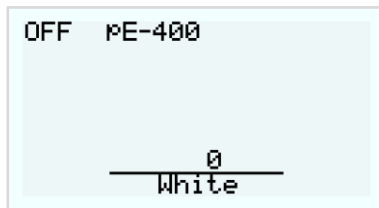


Item	Description
1	Mode button
2	On/Off button
3	Increase global irradiance
4	Decrease global irradiance

*The pE-400 Control Pod*

### Illuminating the pE-400

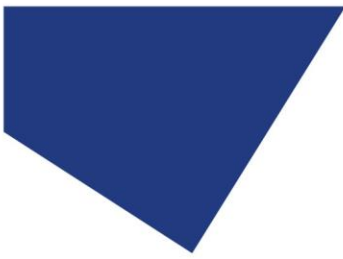
1. Power up your pE-400 by switching the Power Switch on the back panel of the Light Source to the ON (I) position.



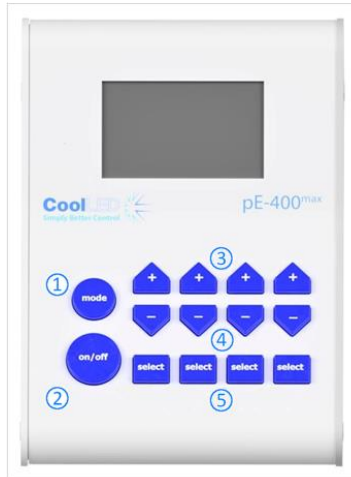
*The pE-400 Control Pod screen. From left to right, showing booting up, off, and on.*

2. To input the desired irradiance, use the increase (+) and decrease (-) global irradiance buttons. The output is off during this adjustment period, indicated by the OFF text and striped irradiance bar on the Control Pod screen.
3. To switch the Light Source output on (illuminated), press the on/off button once. The ON text and solid irradiance bar on the Control Pod indicate the on state.
4. Press the on/off button again to extinguish the Light Source.

**Note:** The irradiance can be adjusted with the Light Source output in an on or off state. If the output is on, changes in irradiance are immediately visible through the microscope.



## pE-400<sup>max</sup> Control Pod



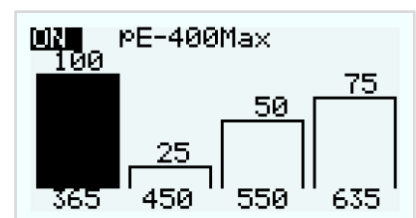
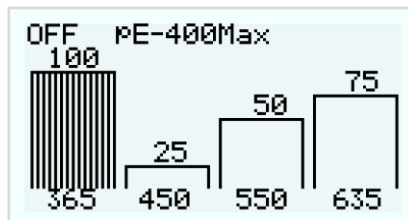
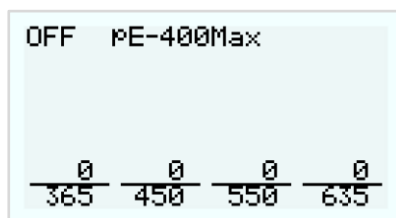
Item	Description
1	Mode button (access additional features)
2	On/off button
3	Increase irradiance of each channel
4	Decrease irradiance of each channel
5	Select each channel

*The pE-400<sup>max</sup> Light Source Control Pod*

### Illuminating the pE-400<sup>max</sup>

Operation is similar to the pE-400 Control Pod, detailed above.

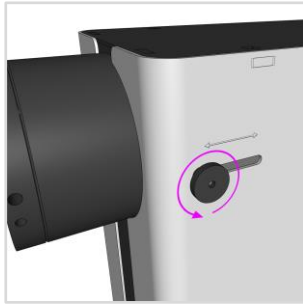
1. For multi-channel control, select the channels to be illuminated using the corresponding 'select' button, and set irradiance using the increase (+) and decrease (-) irradiance buttons.



*pE-400<sup>max</sup> Control Pod screen. From left to right, showing booting, selected (off) at 365 nm, and 365 nm selected (on) at 100% irradiance.*

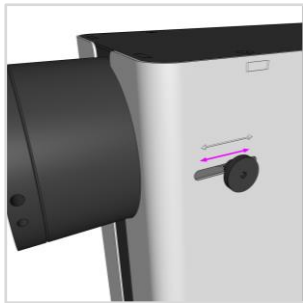
## 6. Optical Adjustment

Direct Fit pE-400 Series Illumination Systems must be focused to deliver bright, homogenous illumination.



1. Loosen the focus adjustment thumbscrew by rotating the screw anticlockwise.

**Warning:** The focus adjustment thumbscrew must be loosened and not removed. Removing the Thumbscrew may damage your Light Source.



2. With the thumbscrew slack, focus can be adjusted by sliding the thumbscrew forwards and backwards.

3. While looking through the eyepiece of the microscope, position the thumbscrew for optimal homogeneity:



*Field of view (from left to right): An underfilled sample plane (focus adjustments required); a central bright spot (focus adjustments required); most homogenous (optimal focus).*



4. With optimum focus achieved, fasten the thumbscrew by rotating clockwise.