Quick Start Guide

pE-10

This Quick Start Guide provides basic information required to install your new pE-10 Illumination System. For additional details and other valuable resources, please see the pE-10 User Manual or the CoolLED website at www.coolled.com.

1. Safety Precautions

Warning: While LEDs are much safer than the mercury and metal halide lamps they replace in microscopy applications, precautions should still be taken with this product. When operating or maintaining this product, please observe the following safety precautions at all times. Failure to do so may result in personal injury or damage to other items.

- Please ensure that only the power supply and cord supplied are used with this equipment.
- The AC cord supplied with this light source must only be used with the equipment supplied.
- UV and IR light may be emitted from this product depending on the wavelength selected. Avoid eye and skin exposure. Never look directly into the light output beam from the Light Source or accessories. The emissions could damage the cornea and retina of the eye if the light is observed directly.
- Always ensure that the Light Source is securely attached to the microscope via a light guide and collimator, prior to turning on the power. This will minimise the risk of injury and damage.
- If for any reason the Light Source is to be operated when not attached to a microscope, all personnel should wear eye shielding and clothing to protect the exposed skin.
- Disconnecting the mains supply is achieved by unplugging the power cord from the power supply block or the Light Source. Only plug in the power cable once the Light Source is attached to the microscope.
- There are no serviceable parts within the Light Source. Removing any of the screws and covers will result in the safety of the Light Source being impaired. The DC power supply unit should be inspected periodically throughout the lifetime of the system.
- Any electronic equipment connected to this product must comply with the requirements of EN/IEC 60950.
- The Light Source is for Indoor use only.
- To clean the exterior of the Light Source, use a slightly dampened cloth with a simple water solution only. Avoid the optical surfaces and lenses. Cleaning of optics should only be carried out using optical wipes and fluids. Please note that the DC power supply unit should be isolated prior to cleaning.

2. System Components

The CoolLED pE-10 Illumination System is supplied with the following components:

- Main Light Source with Optical Output for 3 mm liquid light guide
- Excitation filter holder with two cleanup filters (550/40 and 580/40)
- DC Power Supply type GST160A12-R7B
- IEC Power Cable
- USB Cable
- User Guide (USB stick)
- A variety of Hex keys

In addition to the components listed above, it is possible that a liquid light guide, collimator or additional accessories will be supplied. When un-packing the system, it is important to check the contents against the delivery note.

Figure 1: (clockwise) pE-10 Light Source, Filter Holder, pE-10 Power Supply

3. Installation

6.1. Connecting the 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 inserted in the Light Source output barrel (Figure 2).

2. While holding the liquid light guide securely in place, use the 1.5 mm Hex Key to gently fasten retention grub screw found at the output of the Light Source (Figure 3).

Figure 2

Figure 3

Do not over-tighten the liquid light guide retention grub screws. Over- tightening may damage the liquid light guide or the Light Source and result in an unsafe or poorly performing installation.

3. Ensure free airflow around the Light Source so that the cooling system is not impaired. A gap of 100 mm around the light source is sufficient. For optimal cooling performance the Light Source should only be operated in the orientation shown throughout this document, stood on its four rubber feet.

4. For microscopes that permit direct liquid light guide insertion, insert and secure the free end as per the microscope manufacturer's instructions.

- 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 the CoolLED pE-Universal Collimator. For information on installation, optical adjustment and moving to a different microscope, please see:

  www.coolled.com/products/accessories/pe-universal-collimator

Note: For optimal performance, we recommend using the CoolLED universal collimator, which can be configured to suit the specific microscope setup. When properly adjusted, it typically provides superior irradiance and homogeneity, compared to alternative collimators.

6.2. Power Connection

With the pE-10 installed in its final location, it is now safe to connect the mains power, using the following steps.

1. Ensure the on/off switch on the back panel of the Light Source is in the off position.

Figure 4

2. Connect the Power Supply to the Light Source by inserting the Power Supply connector into the power socket marked on the side panel of the Light Source (Figure 5**Error! Reference source not found.**). Use the markings surrounding the power socket for correct orientation.

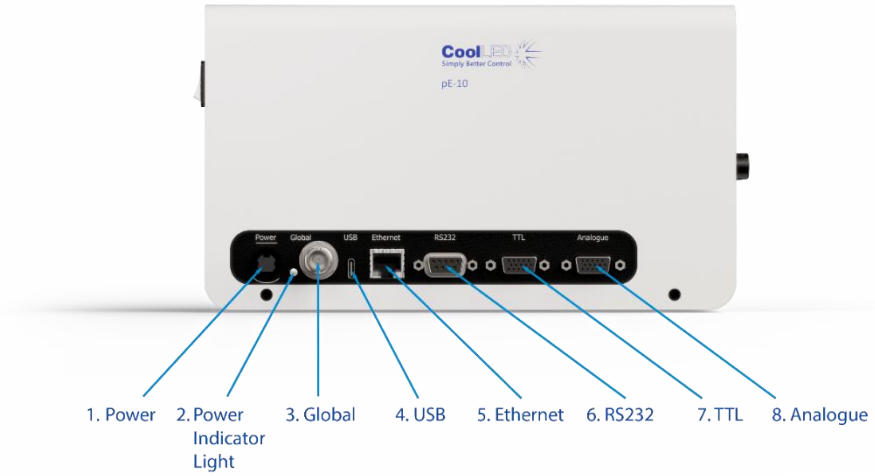

Figure 5

3. Once the pE-10 is coupled to a microscope, ensure that adequate clearance remains at the rear of the unit such that the PSU cable can be removed if required.

7. Light Source Control

With the pE-10 connected to the microscope, the following steps initiate and modulate illumination.

7.1. Software via USB connectivity

To communicate with the pE-10 for software control, connect the PC and Light Source, using the following instructions:

1. Connect the USB-A end of the supplied USB cable to an available PC port.
2. Connect the USB-C end to the Light Source (**Error! Reference source not found.**).
3. The interface uses a virtual COM port, and Windows 10 or newer Operating Systems will automatically detect the pE-10.

7.2. All Control Options

The CoolLED 10 Channel Light Source can be controlled through the following methods:

USB Control via LightBridge

LightBridge Graphical User Interface is due to be available soon.

USB Command Interface

Requires a COM port communication tool such as PuTTY to send commands.

RS-232 Serial Command Interface

Connect via RS-232 to send commands for control.

TTL Control (Global and Individual Channel)

This requires an 11-way BNC or SMB cable to trigger channels via TTL signals. CoolLED do not currently supply this as a component.

Analogue Control (per-Channel)

Individual channel control via analogue voltage input (0 – 10V) using the 11-way BNC or SMB cable.

Ethernet Control

Not currently available.