

Quick Start Guide - cellSens

IQS002- Rev 05

Issue Date: 23/05/22

1 Integrated CoolLED Products:

- pE-2
- pE-300^{white}, pE-300^{ultra} & pE-340^{fura}
- pE-4000
- pE-800 Series (pE-800 and pE-800^{fura})

2 Setting up your CoolLED Illumination System COM Port via USB:

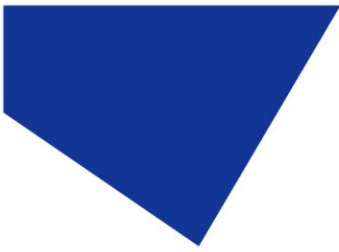
1. The pE-800 and the pE-800^{fura} CoolLED Illumination Systems will be automatically detected and allocated a driver when using Microsoft Windows 10 or later. If using an earlier version of Windows or using any other CoolLED Illumination System, please skip to step 2.

Connect the pE-800 or pE-800^{fura} to the PC using the USB cable and turn the power ON. Windows will automatically detect the hardware and install the driver. Once connected, move to section 3 “Installing your CoolLED Illumination System in cellSens” and skip the remaining steps in section 2.

2. The CoolLED pE Driver file should be downloaded from the CoolLED website:

<https://www.cooled.com/support/imaging-software/#cooled-pe-driver>

N.B. This is a general driver for Windows machines and all USB controlled CoolLED Illumination Systems (pE-2, pE-300 Series & pE-4000). The driver is also used for the pE-800 Series when using Windows operating systems earlier than Windows 10



3. Save the files (.inf and certification files) to a preferential location on your Computer (e.g. Desktop)
4. When the CoolLED Illumination System is plugged in, it will appear with a driver required warning (yellow exclamation mark). Right click and 'update' the driver, pointing it to the previously downloaded directory containing the .inf file.
5. Once the CoolLED Illumination System has been successfully installed into Windows, check the Virtual COM ports assigned by going into Device Manager. The CoolLED Illumination System should be listed under 'Ports' (COM & LPT):

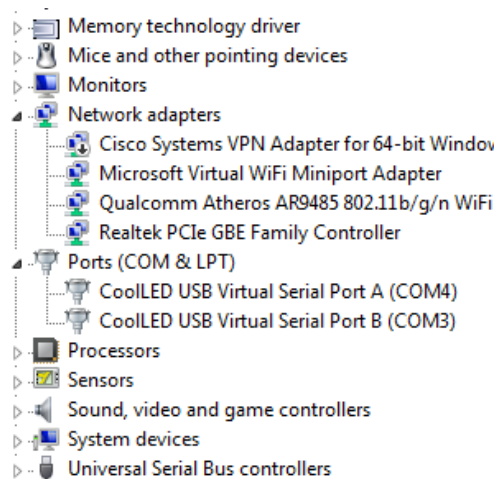
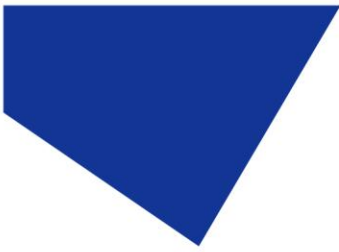


Figure 1: Device Manager with a pE-4000 installed.

Either COM port may be used for control. The creation of two COM ports is to allow for multiple uses (for example: one could be used for controlling the CoolLED Illumination System whilst the other is used for command testing). Additionally, it allows for ease of use if there is a COM port conflict.



3 Installing your CoolLED Illumination System in cellSens

1. During installation and setup of your configuration, you will reach the 'Microscope Accessories Selection' screen (see below). Scroll and find CoolLED in the list.

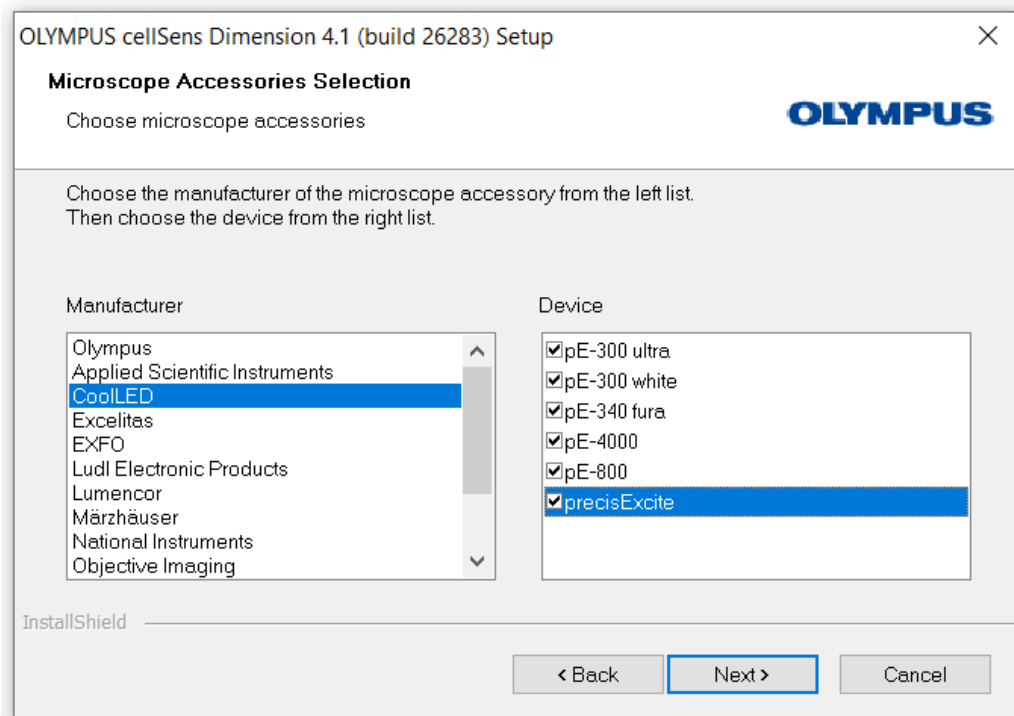


Figure 2: CoolLED devices listed in 'Microscope Accessories Selection'

1. Please ensure that you click the tick box for your applicable CoolLED Illumination System, whether it be the pE-800, pE-4000, pE-300^{white}, pE-300^{ultra}, pE-340^{fura} or the pE-2 (precisExcite).



4 Configuring your CoolLED Illumination System in cellSens

1. From the cellSens start up screen, navigate to the 'Device List' (See below)

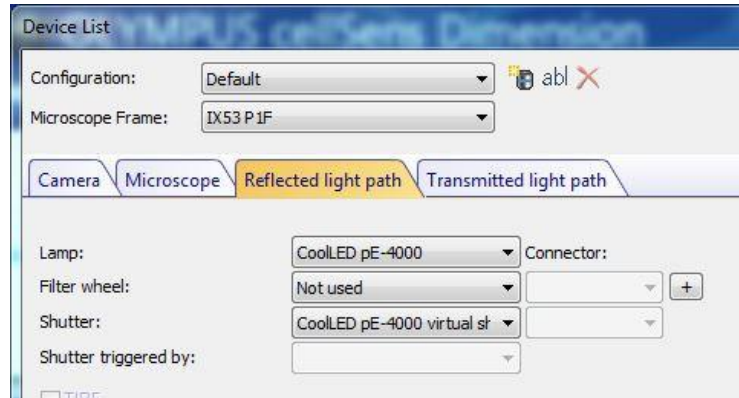
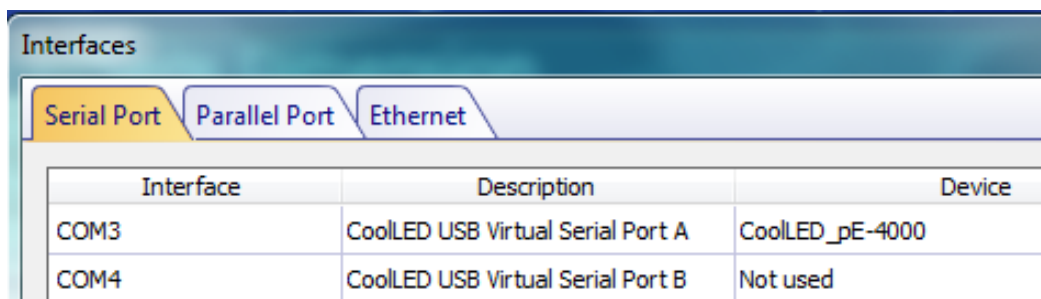


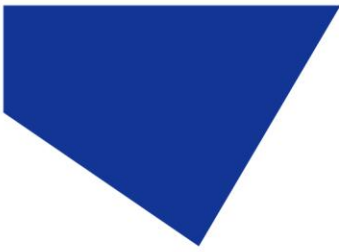
Figure 3: 'Device List'

2. In the 'Lamp' dropdown, select the CoolLED Illumination System (in this example pE-4000) and in the 'Shutter' dropdown select the 'CoolLED Virtual Shutter'.
3. On the same screen, click on 'Interfaces' and assign one of the COM ports to the unit. The COM port will be automatically assigned for the pE-800 or pE-800^{tura} when using Microsoft Windows 10 or later.



Interface	Description	Device
COM3	CoolLED USB Virtual Serial Port A	CoolLED_pE-4000
COM4	CoolLED USB Virtual Serial Port B	Not used

Figure 4: 'Interfaces'



- Return to the Start screen and click 'Device Settings'. The System and shutter will now appear as below to be used in the customisation menu:

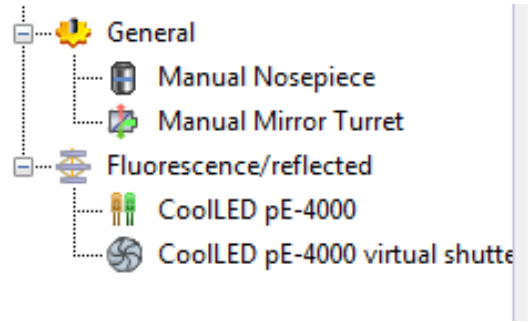
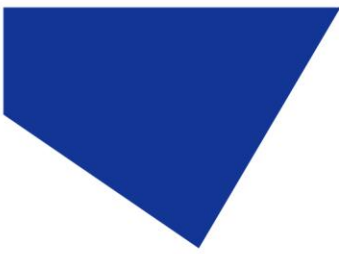


Figure 5: The pE-4000 configured in 'Device Customization'



5 Examples of Software Functionality:

5.1 'Observation Methods'

1. To set up a 'method', navigate to 'Device Customization':
2. Select wavelength and intensity; It is also possible to switch on more than one wavelength and at different intensities.
3. Configure the shutter: the shutter can be used as 'use for acquisition', which means that the LED(s) will be switched on when the camera is in live mode or when taking an image – and then turned off when not acquiring. This is useful in several ways, namely for protecting samples with reduced risk of phototoxicity and photobleaching.

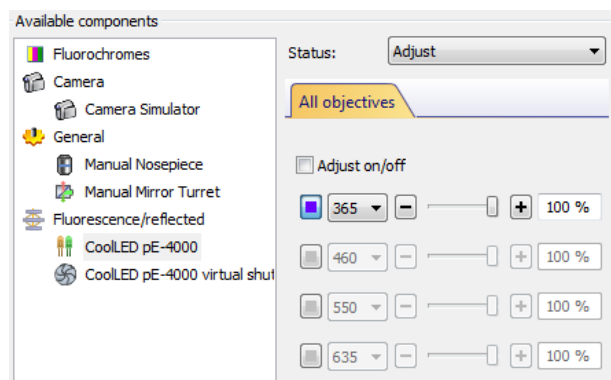


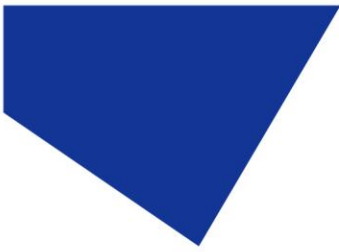
Figure 6: 'Device Customization'

4. It is possible to set up several wavelengths or 'methods' as required:



Figure 7: Several Methods

- At present, the Evident/Olympus pE-4000 integration does not allow 'in-bank' switching: This means that it is not possible to use the USB to switch between wavelengths in the same pE-4000 channel (Such as 365 nm & 385 nm, or 460 nm & 500 nm).
- However, this can be done while using the microscope buttons or 'softkeys'.



5.2 Microscope / Manual control

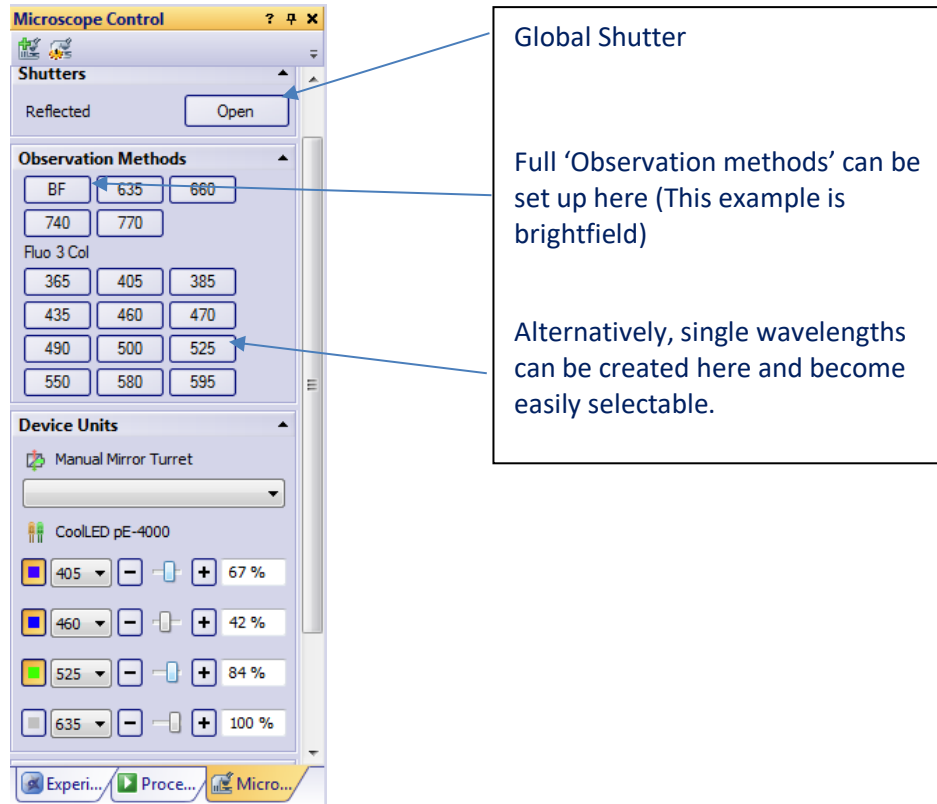


Figure 8: 'Microscope Control'

- At the bottom of 'Microscope Control', the wavelengths can be switched on and off and different intensities set. This will reflect the wavelengths selected via the control pod, 'softkeys' or buttons created at the top of the menu.

5.3 Experiment Manager:

- Up to four channels can be run as 'Methods'.

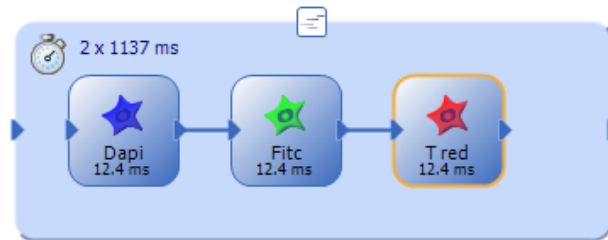
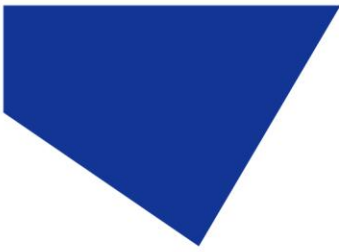


Figure 9: An example of 'Methods' in Experiment Manager

- As there is no support currently for USB 'in-bank' switching, methods can be saved and reloaded: For example, the above DAPI/FITC/TEX method (365 nm/470 nm/580 nm), can be saved as an experiment and reloaded to be used with new exposure times.
- Other methods can also be created separately and then saved and reloaded. For example, if 385 nm/490 nm/525 nm was needed for a different experiment, this method could be saved as well.
- In this fashion, template methods can be used to speed up the day-to-day setting up of experiments.



6 Troubleshooting: cellSens Customisation

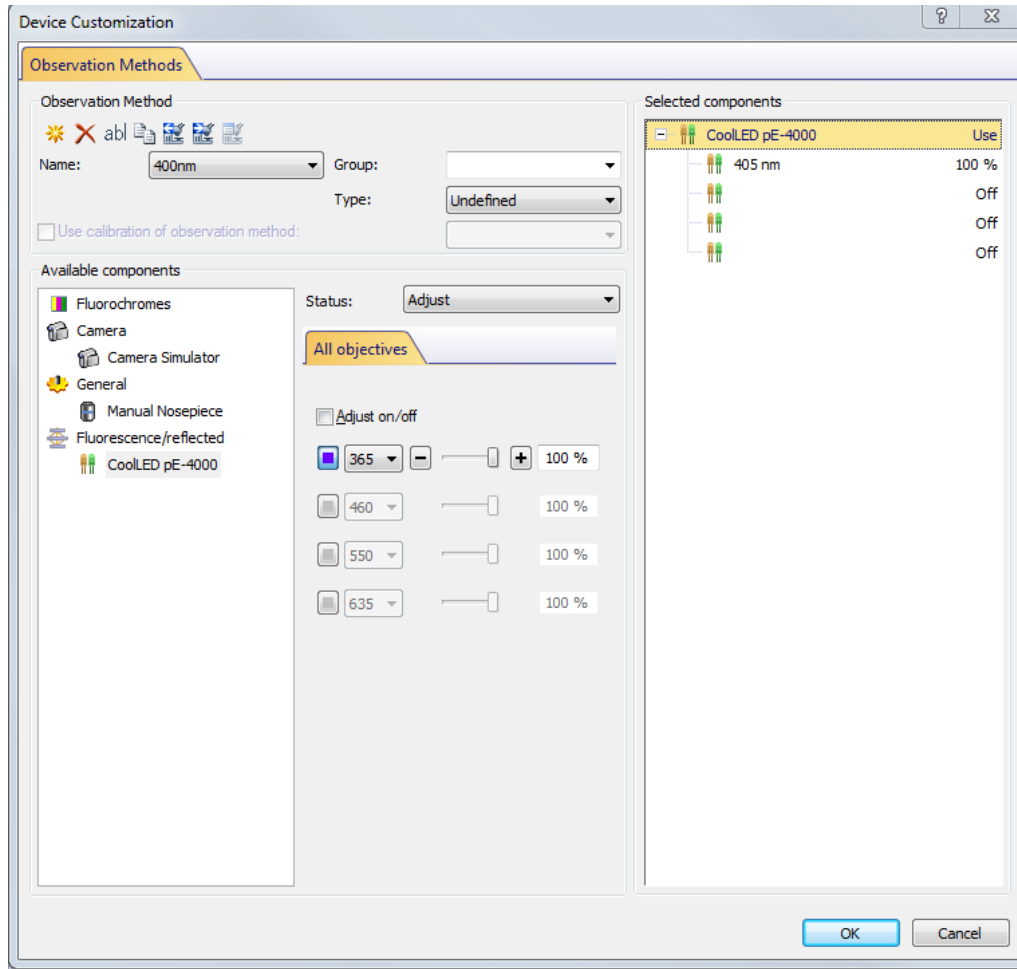
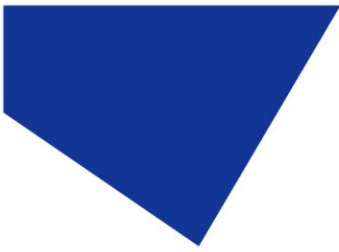


Figure 10: Device Customization

1. Currently there are some minor issues with the Device customisation settings. When setting up the parameters for several methods, it is important to continue clicking 'New Observation Method' until you have set up all your methods rather than pressing 'OK' each time; this can inadvertently write over the settings you have just customised.



Figure 11: The left-hand icon is 'New Observation Method'



- 2. There is no need to tick Adjust On/Off tick box; this can sometimes cause resetting.

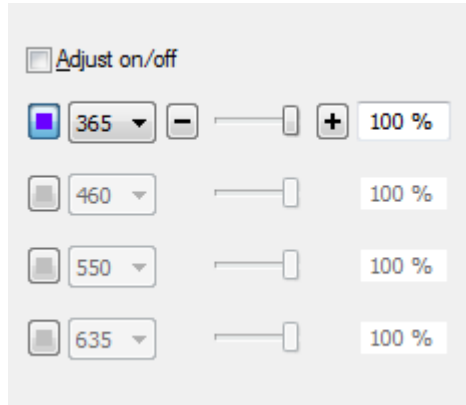


Figure 12: The 'Adjust on/off' tick box