# Quick Start Guide for LAS X

IQS004- Rev 02

Issue Date: 25/05/2017

## 1 Integrated CoolLED Products:

- **pE-300$^{white}$, pE-300$^{ultra}$ & pE-340$^{fura}$**
- **pE-4000**

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

1. The CoolLED driver file should be downloaded from the CoolLED website:

   http://www.coolled.com/product-detail/imaging-software/

   N.B. This is a general driver for Windows machines and all USB controlled CoolLED Illumination Systems (pE-2, pE-300 Series & pE-4000).

2. Save the files (.inf and certification files) to a preferential location on your Computer (e.g. Desktop)

3. 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.

4. 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):

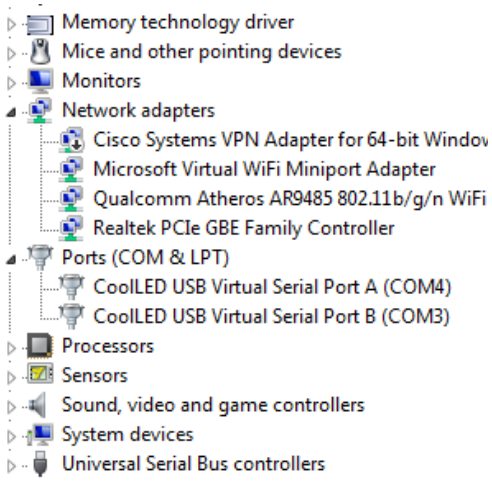



Figure 1: Device Manager with a pE-4000 installed.

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 & Configuring your CoolLED Illumination System in LAS X

## 3.1 Installation

1. To install and configure LAS X to use a pE-300 Series or a pE-4000, the 'Leica LAS X Hardware Configurator' needs to be opened before opening LAS X itself.

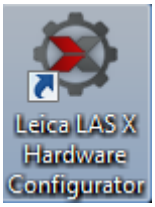



Figure 2: 'Leica LAS X Hardware Configurator' icon

2. After opening the 'Leica LAS X Hardware Configurator', the 'setup' window will appear; navigate to the 'Hardware Setup'.

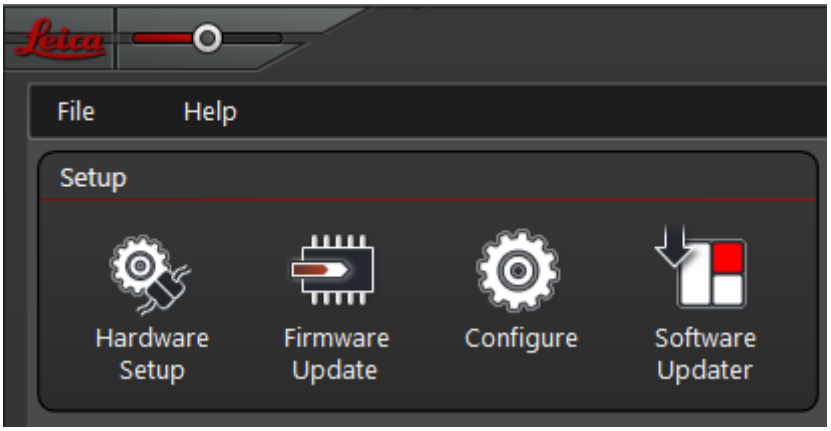



Figure 3: 'Setup' Window

3. The hardware setup screen allows configuration of the Microscope and Light source; There are several drop downs to alter these. In the below example, a Leica DMI8 has been selected as the Microscope, and the pE-4000 has been selected as the 'Multi-colour- Lightsrc'. Ensure that you have selected the correct COM Port for the pE product, which should correspond with the COM port that Windows defined earlier and is viewable in Device Manager.

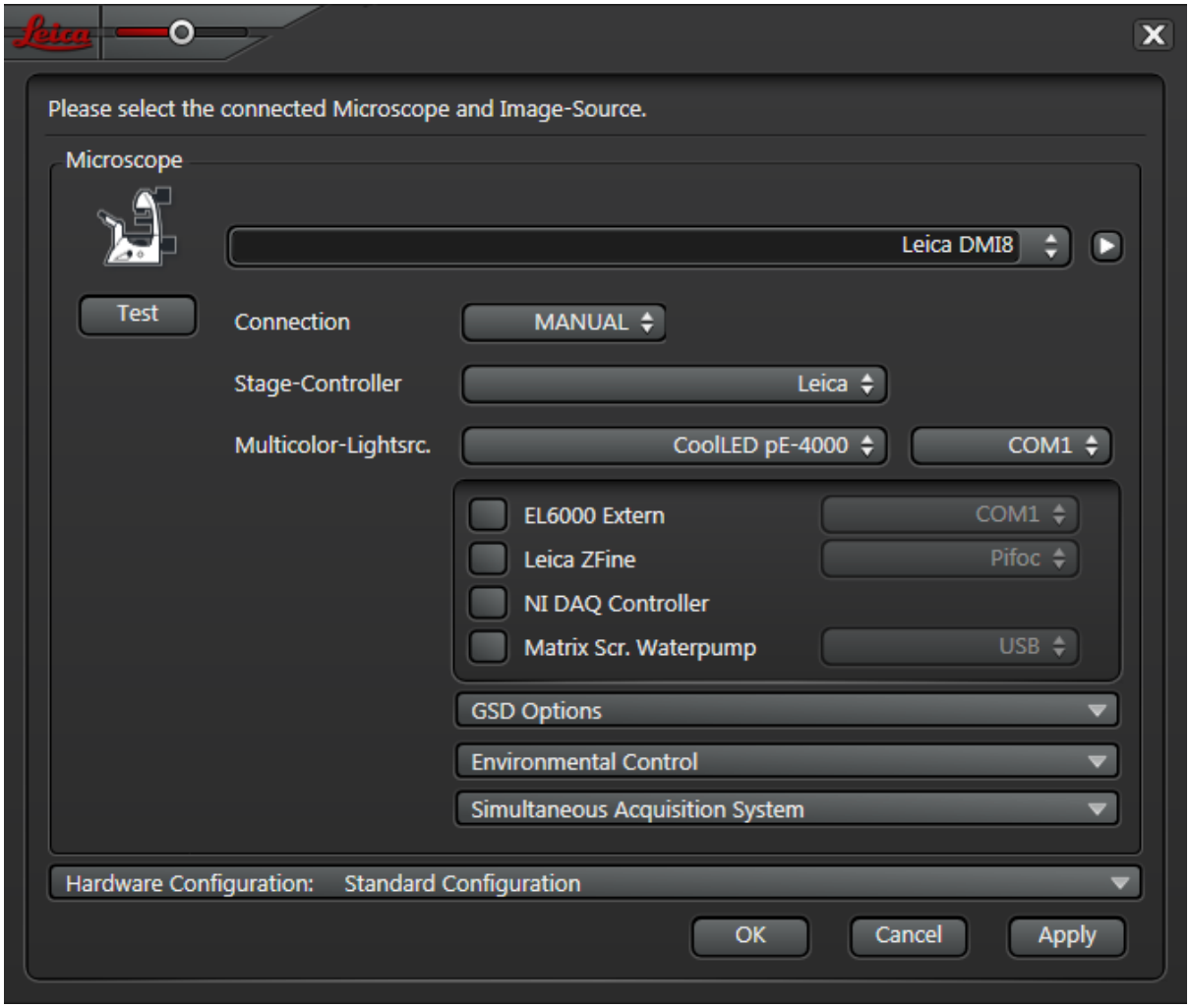



Figure 4: 'Hardware Setup' Window

4. It is possible to save the configuration that has been created by using the drop down; clicking ‘New’ will create a new configuration, and any that have been already created are automatically saved:

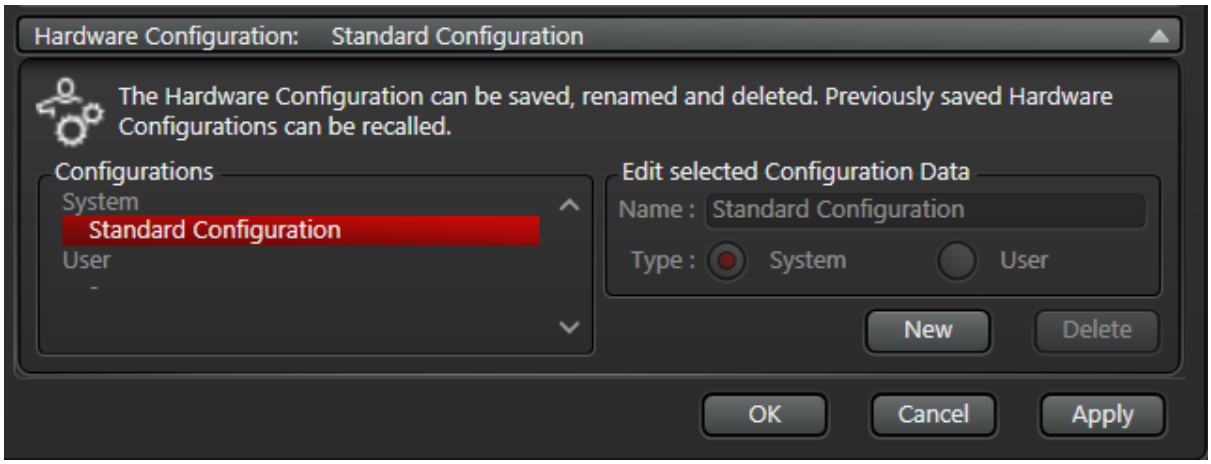



Figure 5: 'Hardware Configuration' drop-down for saving a configuration

5. Once the selection of setup components is completed, click ‘Apply’, and then click ‘OK’. This will close this window and return to the ‘Leica LAS X Hardware Configurator’.

## 3.2 Configuration

1. From the ‘Leica LAS X Hardware Configurator’ window, this time select the ‘Configure’ tab. This will bring up some sub windows; which allow configuration of several parts of the LAS X setup.

2. In order for the system to operate correctly, it is necessary to match up the CoolLED Illumination System wavelengths with filters in LAS X configuration; this is possible by selecting the ‘IL- Turret’ tab in ‘Configure’, and then double clicking on the relevant filters:

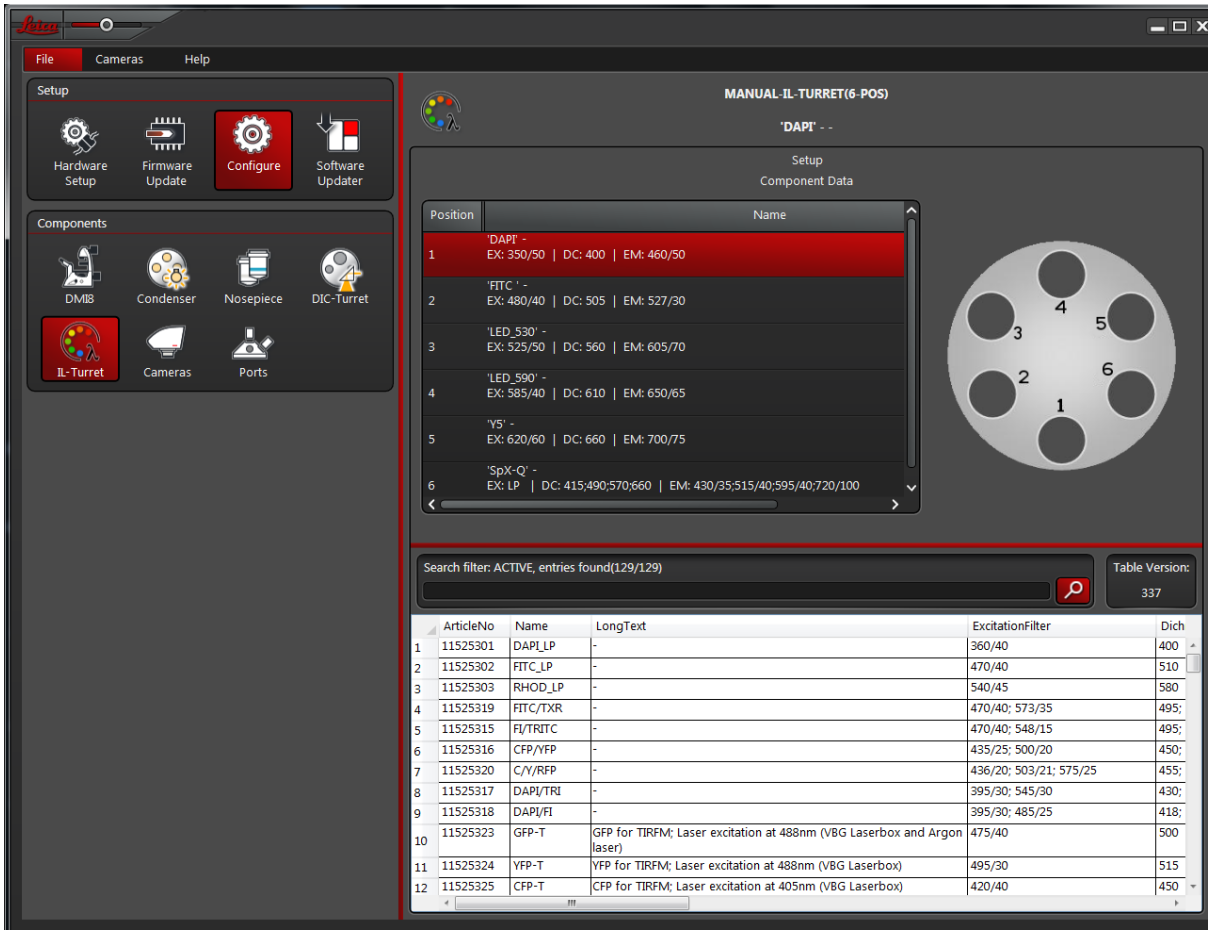
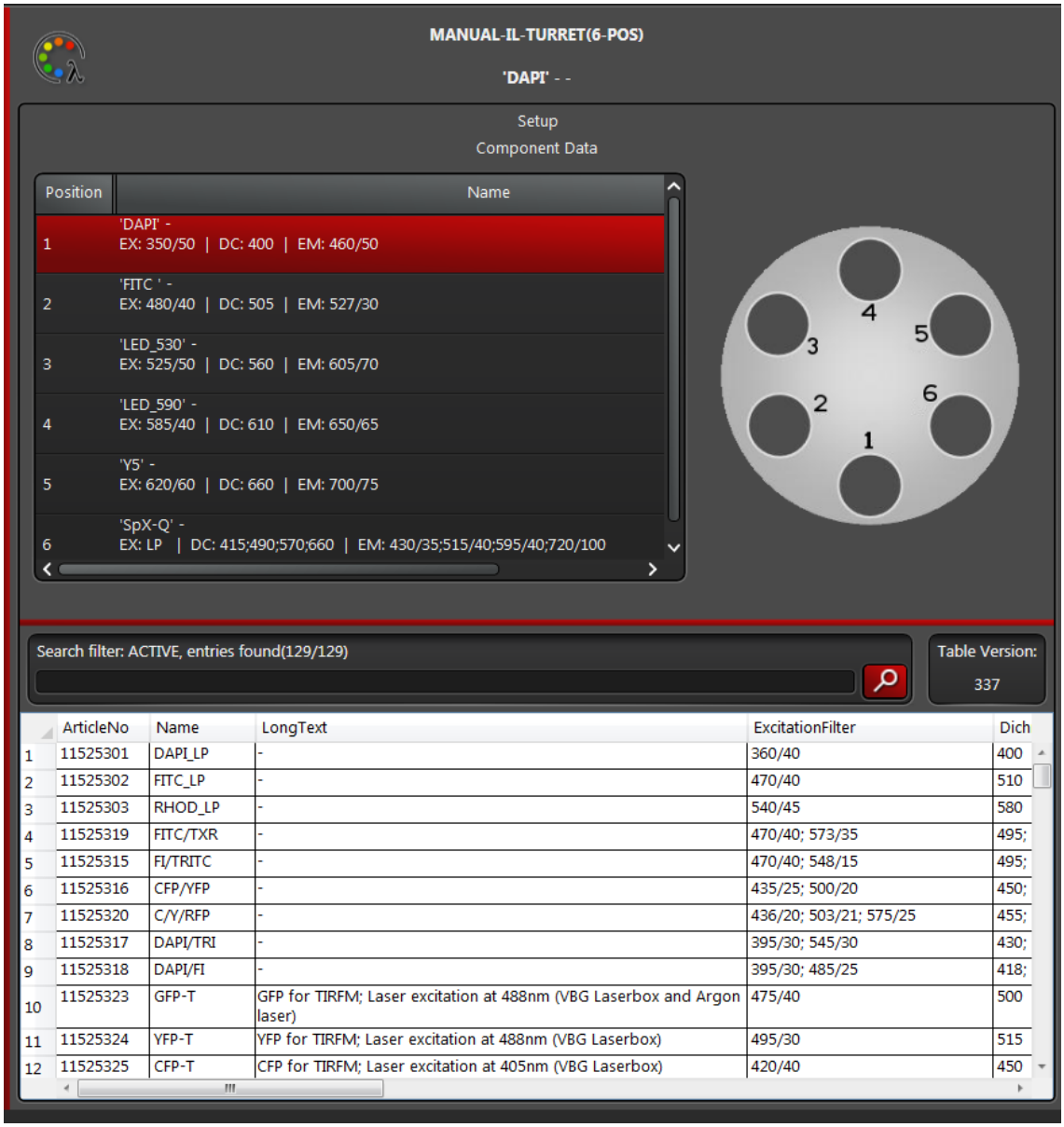



Figure 6: The 'IL- Turret' window, within 'Configure'




| | ArticleNo | Name | LongText | ExcitationFilter | Dich |
|---|---|---|---|---|---|
| 1 | 11525301 | DAPI_LP | - | 360/40 | 400 |
| 2 | 11525302 | FITC_LP | - | 470/40 | 510 |
| 3 | 11525303 | RHOD_LP | - | 540/45 | 580 |
| 4 | 11525319 | FITC/TXR | - | 470/40; 573/35 | 495; |
| 5 | 11525315 | FI/TRITC | - | 470/40; 548/15 | 495; |
| 6 | 11525316 | CFP/YFP | - | 435/25; 500/20 | 450; |
| 7 | 11525320 | C/Y/RFP | - | 436/20; 503/21; 575/25 | 455; |
| 8 | 11525317 | DAPI/TRI | - | 395/30; 545/30 | 430; |
| 9 | 11525318 | DAPI/FI | - | 395/30; 485/25 | 418; |
| 10 | 11525323 | GFP-T | GFP for TIRFM; Laser excitation at 488nm (VBG Laserbox and Argon laser) | 475/40 | 500 |
| 11 | 11525324 | YFP-T | YFP for TIRFM; Laser excitation at 488nm (VBG Laserbox) | 495/30 | 515 |
| 12 | 11525325 | CFP-T | CFP for TIRFM; Laser excitation at 405nm (VBG Laserbox) | 420/40 | 450 |

Figure 7: Close up of the available filter positions (Top) and selectable Filters (Bottom) that are already integrated into LAS X


Figure 8: The filters as viewed in 'Acquire' Mode

3. Additionally, it is possible to configure and control each channel on the pE-4000 via TTL in LAS X. Under the 'Sequencer' tab (shown below), clicking 'TTL Triggers' will bring up a window in which the BNC's can be assigned:

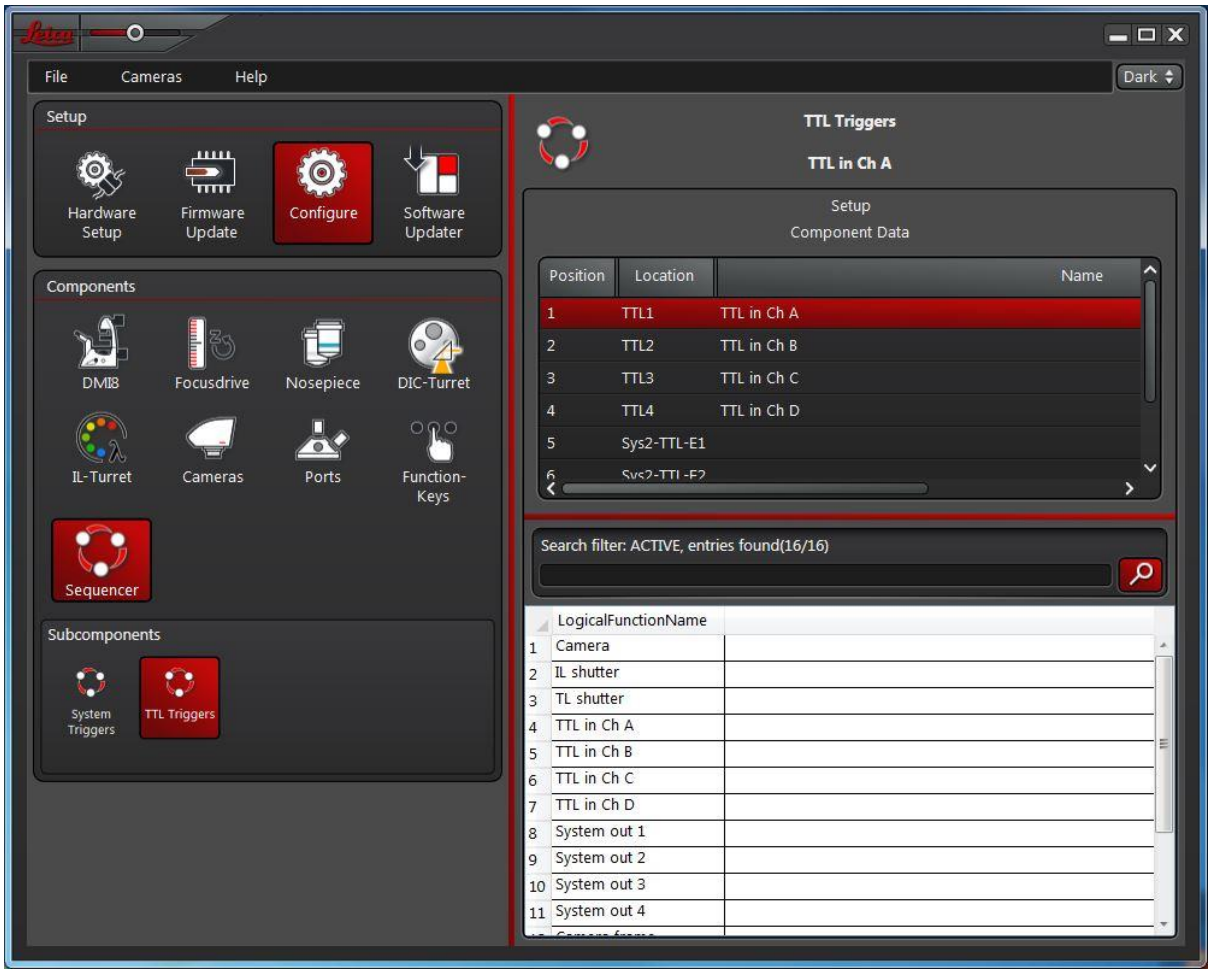



Figure 9: 'TTL Triggers' within the 'Configure' window

4. With the configuration now complete, the ‘Leica LAS X Hardware Configurator’ can now be closed and LAS X itself can be opened:


Figure 10: 'LAS X' icon

5. After opening LAS X, the CoolLED Illumination System will appear on the left-hand side of the ‘Acquire’ window, under ‘LED Illumination’. The CoolLED Illumination System can be controlled by intensity sliders, wavelength drop downs (for the pE-4000) and individual channel shutters.

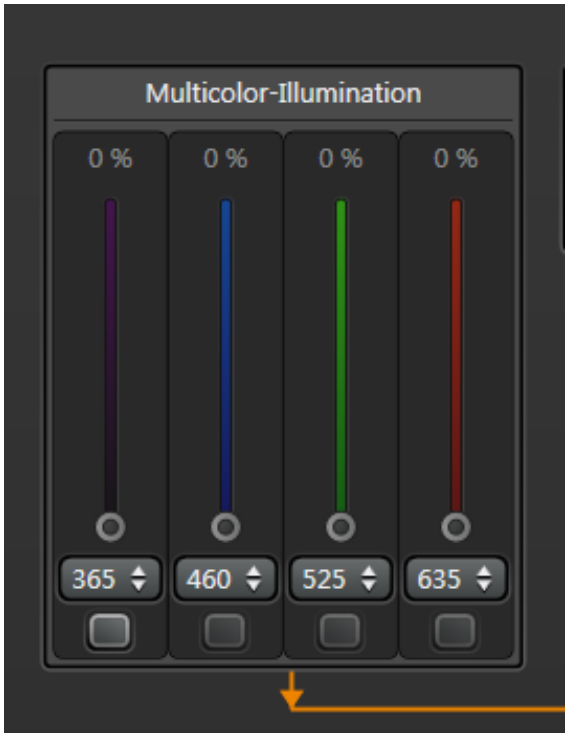



Figure 11: 'Multi-Colour Illumination'- Control for pE products

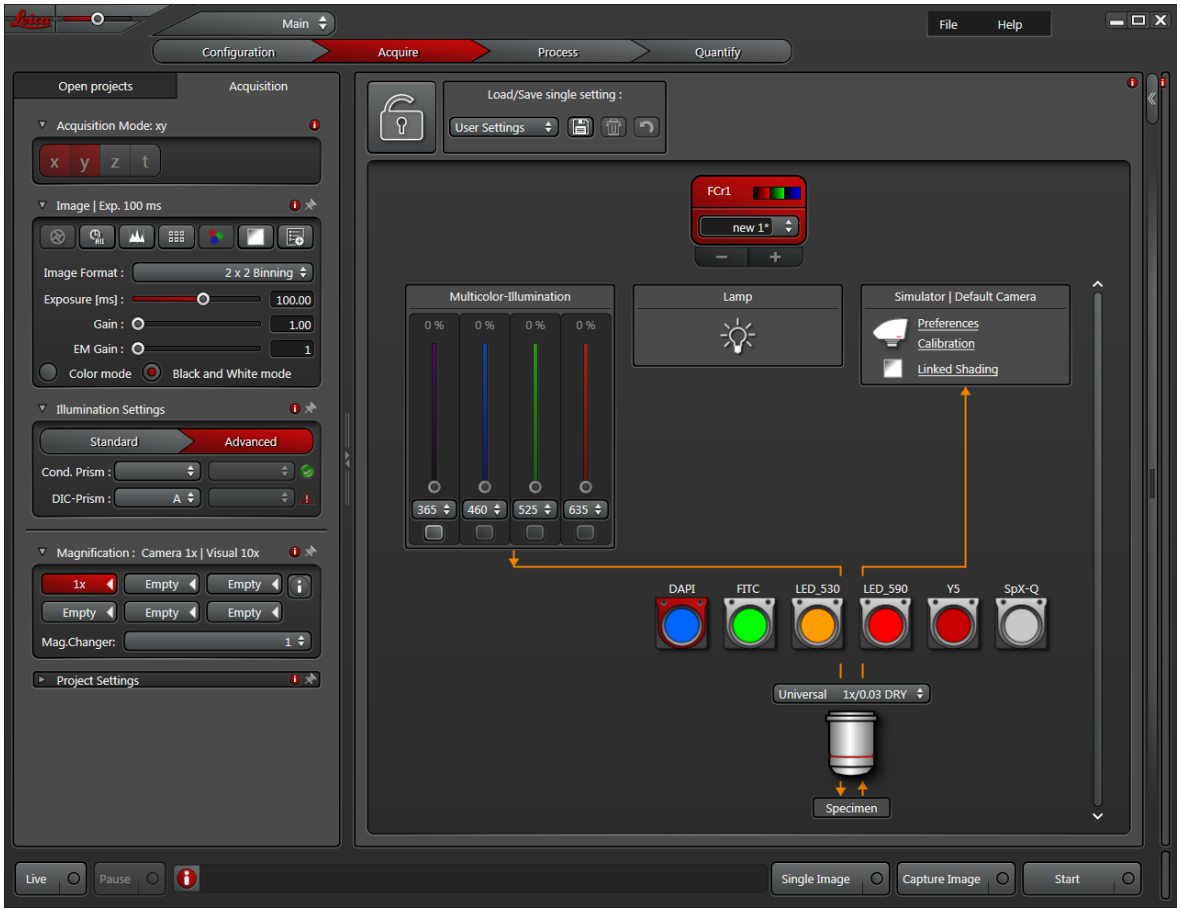



Figure 12: An example of the pE-4000 set up in 'Acquire' Mode in LAS X