Multi-channel capture in Image-Pro using the CoolLED pE-340^{fura} and pE-300 Series Illumination Systems

Supported Systems

The CoolLED pE-300^{ultra}, pE-300^{white} and pE-340^{fura} are supported in Image-Pro v11.

Installing CoolLED Software

1. Download the CoolLED pE driver from https://www.coolled.com/support/imaging-software/. Unzip the files into a folder on the computer.

2. Power on and plug the CoolLED into a USB port on the computer. Windows will ask for a driver file unless one has already been installed.

3. Navigate to the CoolLED pE driver folder created in the first step. Select the CoolLED-pE.inf file. Windows will install the CoolLED driver.

4. Once the CoolLED device has been successfully installed into Windows you should look at the Virtual COM ports assigned by going into Device Manager. Look within Ports (COM & LPT). You should see CoolLED USB Virtual Serial Port A (COMX) and CoolLED USB Virtual Serial Port B (COMY) entries if everything installed properly.

Configuring the CoolLED Illumination System

1. Open the **Application Options** Panel

   Select the **File** Menu, then select **Options**, which you find at the bottom of the file management view. The options dialog will open.

2. Select the Capture Options

   The options dialog is organized as a set of categories, which are displayed on the left of the dialog. Click on the **Capture** category.

3. Configure the Options

   The Capture options contain a set of controls.

   Select the **Enable Control** check box, then select the pE-300 from the **Model** drop down list.

   Select either CoolLED USB Virtual Serial Port A or CoolLED USB Virtual Serial Port B in the **Port** setting.

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Close the application options dialog.

4. Display the **Live Preview** panel by selecting the **Capture** ribbon, then clicking on the **Live** button.

    The **Live Preview** panel opens. Channel Buttons are displayed at the top. Unconfigured channels are labelled **SETUP**, indicating that setup of the channel is required.

5. Select the **Configure Channel** section of the **Live Preview** panel by clicking on any of the unconfigured channels, or alternatively select the **Settings** tab of the **Live Preview** panel and scroll down to the **Configure Channel** section.

    Configure each of the fluorescence channels in the **Configure Channel** settings.

    a. Select a channel from the **Channel** drop down list.

    b. Select the appropriate excitation wavelength from the **Ex λ** drop down list.

    c. Select the appropriate dye name from the **Dye** drop down list. The name of the dye will be used to name the selected channel, and the dye's emission color will be used to color the selected channel. Clicking on the channel name (in the **Channel** drop down list) allows you to edit the channel name. Clicking the **Color** button allows you to edit the channel color.

    d. Click the **Apply** Button. The channel button will update to display your changes.

    Configuring a transmitted light channel in the Configure Channels settings.

    a. Select a channel from the **Channel** drop down list.

    b. Select **Manual Control** from the **Ex λ** drop down list.

    c. Select the appropriate transmitted light modality from the Dye dropdown list, for example DIC, Phase or Bright-Field.

    d. Click the **Apply** Button.

Working with Channels

Select a channel button at the top of the **Live Preview** panel to activate that channel. The CoolLED Illumination System will be activated at the appropriate excitation wavelength. If the channel requires manual control, the Illumination System will be deactivated and an **Activate** dialog is shown.

Select the **Preview** tab of the **Live Preview** panel to adjust the light source **Power** setting, and camera settings. Power and camera settings made when a channel is selected become associated with that channel.

Selecting a second channel deactivates the first channel and activates the newly selected channel. Selecting an active channel deactivates the channel. If channels that require manual control are deactivated, a **Deactivate** dialog is shown.

Acquiring Multi-channel Image-Sets

Each channel button is composed of two elements, the channel selection component (the upper section of the button, represented by the channel's emission wavelength color) and a drop-down menu of options (the lower section of the button, represented by the channel name).

The menu of options contains three check boxes.

Acquire: When this option is selected the channel will be included in any captured image sets.

Deconvolve: When this option is selected the channel will be acquired with the Real Time Deconvolution settings applied. The Real Time Deconvolution Module is required to see this option.

Auto-Expose: When this option is selected the exposure time associated with the channel will be replaced with an automatically calculated exposure time based on the brightness of the image. The CoolLED Illumination System will be activated, and the exposure time will be calculated before the acquisition of the image set begins.

Clicking the **Capture** button will initiate the acquisition of an Image-Set composed of all the channels for which the **Acquire** option is selected.

Clicking the **Record** button will initiate the acquisition of a time resolved image set composed of all the channels for which the **Acquire** option is selected. To configure the settings for time resolved image sets such as frame rate and duration, select the **Record Movie Options** from the **Settings** tab of the **Live Preview** panel.