



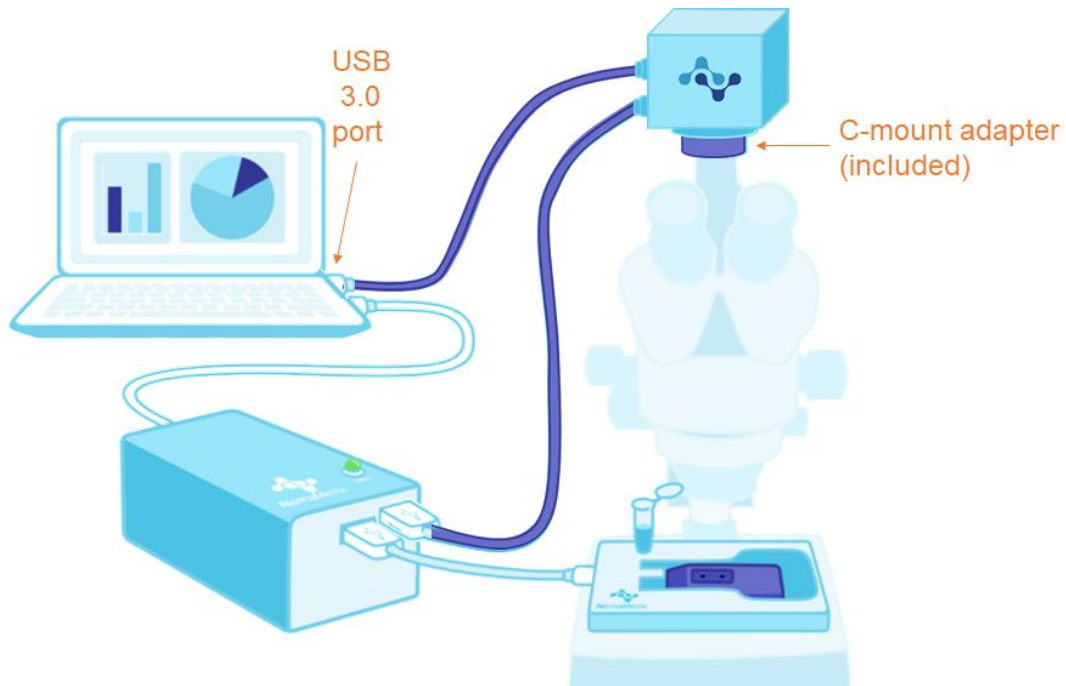
# Visual Synchronizer

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## I. Setup and connections



### A) Camera-to-Computer connection

A USB 3.0 port is needed on your laptop for the camera-to-computer connection. Although a USB 2.0 will still function, it will limit the maximum framerate of the camera drastically.

### B) Camera-to-Microscope Adapter

A standard C-mount camera port or an external C-mount adaptor built for your particular microscope is needed. You have received a camera adapter (C-mount or CS-mount) based on the information that you provided when you ordered your ScreenChip system.

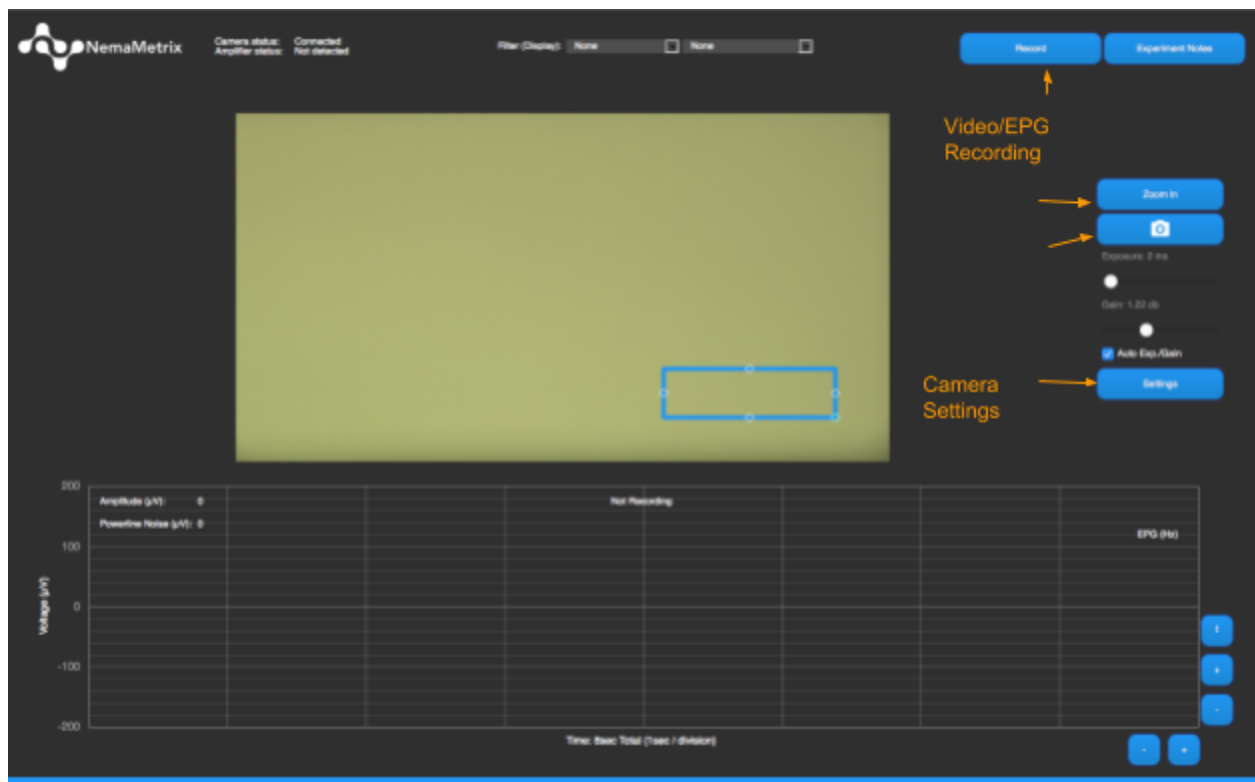


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## II) Software:

### A) NemAcquire

Software layout



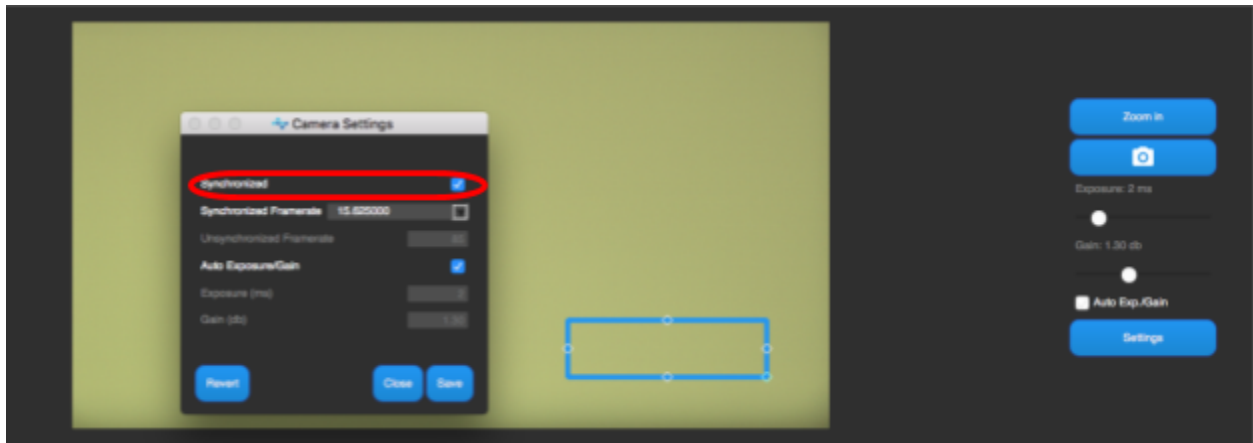
Nemacquire Screenshot



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## Record an EPG-Synchronized video?

1. Bring up the camera settings dialog from **Camera > Settings** or by clicking the **Settings** button within the Camera panel.
2. Make sure that **Synchronized** is checked and press **Save**.



3. The camera will restart into the synchronized mode and will be ready for synchronized recording.

## Acquire images

1. You can take a picture at anytime by using the **image** icon. Don't worry, this will not interrupt any ongoing video recording.

## Increase the Camera Performance

1. Choose an Region of Interest (ROI) by adjusting the blue rectangle and pressing the **Zoom In** button. When **Record** is pressed and the image is zoomed-in, only the region shown is recorded. This allows you to record at a higher framerate.
2. Make sure that a USB 3.0 port is used for the camera-to-computer connection. If the USB 3.0 port is part of a hub, try to reduce the number of additional devices connected



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## How big are the video files?

1. We recommended that you record a short (~10 seconds) video using the desired settings before starting your experiments. This will give you a good idea of the average size of the files for those settings. The created files can range from a few MB to 150 MB for 10-second recording. File sizes depend on the framerate, duration of recordings, computer performance, and size of the ROI.

## Framerate

Maximum Synchronized framerate @ 2048\*1088 (Monochrome): 62.5 Hz

## B) NemAnalysis

### Screen size requirements

For optimal display, we recommend to use a resolution of 1920 x 1080 (or minimum 1440 x 900).

### Playback video and EPG

Press **v** on your keyboard to toggle playback.

### Frame by frame (Video), or Sample by Sample (EPG) analysis

Press **c** or select **View > Show Cursor** to show the cursor. This brings up a blue vertical line over the upper EPG graph. This line indicates the time point that correspond to frame displayed in the video display.

To step through frames, just click on the video display and press left or right arrow keys.

To step through samples, click on the upper EPG graph and press the left or right arrow keys.

If needed, you can find the sample and frame numbers in the left pane under the **Cursor Values** section.

### Viewing Additional Pump Statistics



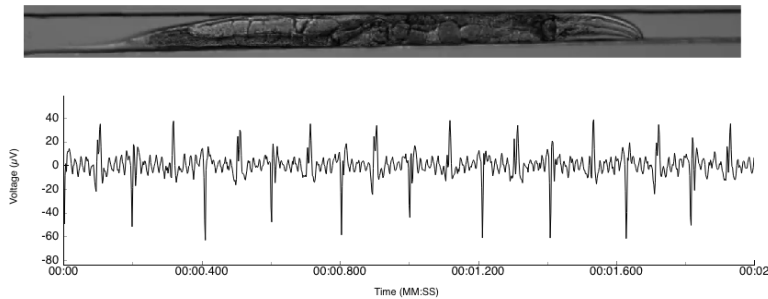
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Select **View > Show Pump Statistics** from the application menu to view various graphs the Pump overlay and EPG over time graphs.

### Exporting Plots and Images

Select **File > Export Plots** from the **Application** menu. This will bring up an export dialog. Using the options, select the plots and image formats of your preference (see example below).

Example of exported data: Zoomed-in, white background, no pump indicators



## III Troubleshooting / FAQs

### 1. Error: 'Camera not being triggered error'

Check that the camera-to-amplifier cable (USB-C to a circular connector on the camera) is firmly connected.

### 2. Error: 'Dropped Frames error'

Reduce the camera framerate in the **Camera settings** dialog box accessible by clicking on the **Settings** button in the right pane. If you need to use a high framerate, select a Region of Interest (ROI) by adjusting the blue rectangle to the smallest possible area and press the **Zoom in** button. NemaAcquire is optimized to only record and process the ROI portion of the captured images, which allows you to get a higher framerate.

### 3. Unable to focus on a worm



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If the image is in focus through the microscope's eyepiece but not on the screen, adjust the adapter's length and / or the stage height to bring the ScreenChip into focus.

#### **4. Cannot increase the exposure time**

The exposure time is limited by the framerate. For example, a framerate of 25 fps results in a maximum exposure time of 40 ms. To increase the exposure time, lower the framerate in the **Camera settings** dialog, which is accessible by clicking on the **Settings** button in the right pane.



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