

MetaMorph Set-up Guide for pE-800 Series with pE-6501-8 or pE-6501-8-FR

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Introduction

The pE-6501-8 or pE-6501-8-FR has been designed to allow fast triggering of the pE-800 Series Illumination System and control of all eight LEDs. The pE-6501-8 or pE-6501-8-FR utilises the National Instruments USB-6501 which has been integrated into MetaMorph.

This User Manual will provide the information required to setup the pE-6501-8 or pE-6501-8-FR with the pE-800 Series into MetaMorph.

Safety Precautions

The pE-6501-8 or pE-6501-8-FR does not pose any real safety risks itself, however as it is designed to be used with CoolLED's range of high intensity Illumination Systems, the appropriate precautions should be taken.

When installing the pE-6501-8 or pE-6501-8-FR, never switch on the Illumination System until it has been securely fitted to the microscope. By following this basic safety rule, protection from the collimated light beam will be provided by the microscope itself, minimising risk of injury and damage. The pE-6501-8 or pE-6501-8-FR or pE-800 Series Illumination System should never be operated with the external covers removed, as this will result in the safety of the units being impaired.

To clean the exterior of the pE-6501-8 or pE-6501-8-FR, use a slightly dampened cloth with a simple water/detergent solution only.

Getting Started – System Components

The CoolLED pE-6501-8 or pE-6501-8-FR is supplied with the following components:

- pE-6501-8 or pE-6501-8-FR
- TTL cable for connecting the pE-800 Series to the pE-6501-8 or pE-6501-8-FR

- A USB cable
- A USB stick with Product User Manuals

If any components are missing or appear damaged, please contact CoolLED immediately.

Installation and Setup of pE-6501-8 or pE-6501-8-FR

Carefully unpack the components from the shipping cartons.

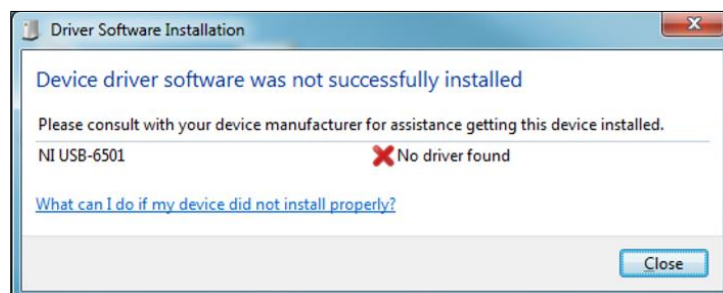
Connect the supplied USB cable to the pE-800 Series and the PC. This will allow use of the LightBridge software for controlling the irradiance of the LEDs. Then connect the power to the pE-800 Series.



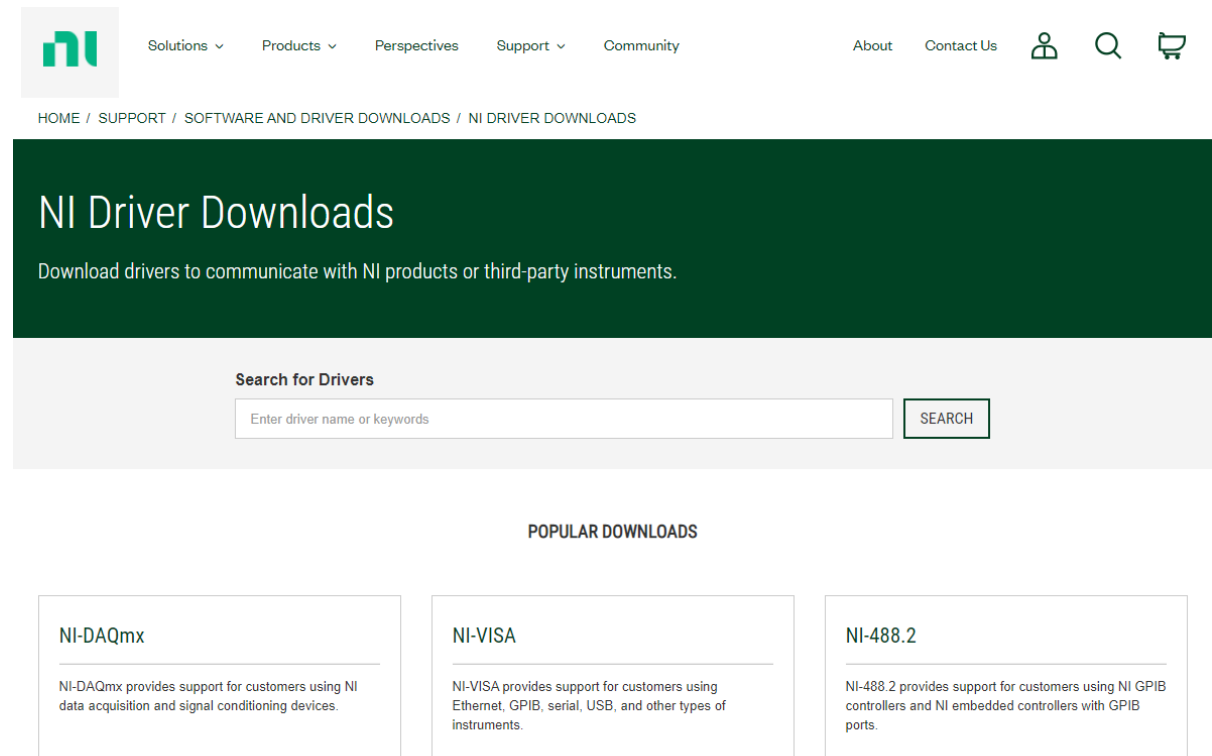
The supplied power, USB and TTL cable attached to the pE-800 Series

The pE-6501-8 or pE-6501-8-FR has a TTL connection to fit the TTL cable to the pE-800 Series (the BNC connection is not used here). Connect the TTL cable to the pE-800 Series and pE-6501-8 or pE-6501-8-FR. Finally, connect the pE-6501-8 or pE-6501-8-FR to the PC using the supplied USB cable.

When the pE-6501-8 or pE-6501-8-FR is first connected to a PC it shall attempt to locate a driver file. Unless a compatible National Instruments driver file has previously been used on the PC, the pop-up below will be displayed.



Please follow the hyperlink below to the National Instruments website to download the



The screenshot shows the National Instruments website's 'NI Driver Downloads' page. At the top is the NI logo and a navigation menu with links for Solutions, Products, Perspectives, Support, and Community. Below this is a breadcrumb trail: HOME / SUPPORT / SOFTWARE AND DRIVER DOWNLOADS / NI DRIVER DOWNLOADS. The main heading is 'NI Driver Downloads' with the subtext 'Download drivers to communicate with NI products or third-party instruments.' Below this is a search bar labeled 'Search for Drivers' with a text input field and a 'SEARCH' button. Underneath the search bar is a section titled 'POPULAR DOWNLOADS' which contains three cards. The first card is for 'NI-DAQmx', the second for 'NI-VISA', and the third for 'NI-488.2'. Each card provides a brief description of the driver's functionality.

NI-DAQmx

NI-DAQmx provides support for customers using NI data acquisition and signal conditioning devices.

NI-VISA

NI-VISA provides support for customers using Ethernet, GPIB, serial, USB, and other types of instruments.

NI-488.2

NI-488.2 provides support for customers using NI GPIB controllers and NI embedded controllers with GPIB ports.

latest NI Hardware Driver- [NI-DAQmx](#).

Select 'Ni-DAQmx' which will take you to a download page.



NI-DAQmx

NI-DAQmx provides support for customers using NI data acquisition and signal conditioning devices.

[+ Read More](#)

 Note: Install programming environments such as NI LabVIEW or Microsoft Visual Studio® before installing this product.

DOWNLOADS

Supported OS 	Windows	View Readme
Version 	20.1 	
Included Editions 	Full	
Application Bitness 	32-bit & 64-bit	
Language 	English, French, German, Japanese, Korean, Simplified Chinese	

NI-DAQmx 20.1

Release Date
30/06/20

Included Versions
20.1.0

> Supported OS

> Language

> Checksum

DOWNLOAD

File Size
5.76 MB

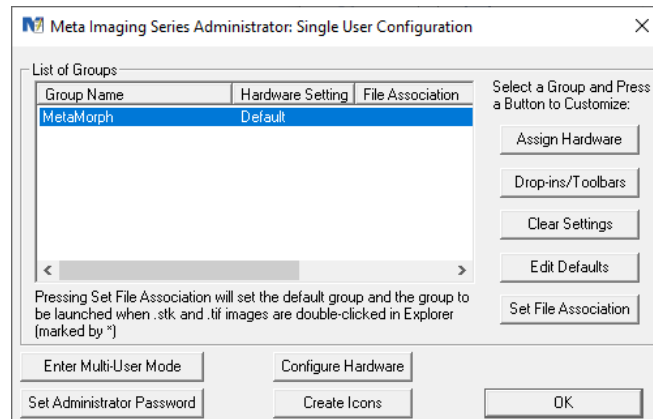
It is recommended to select the latest version to download. Once ready, click DOWNLOAD, and the download will begin.

Once downloaded please continue through the steps in the National Instruments software until complete.

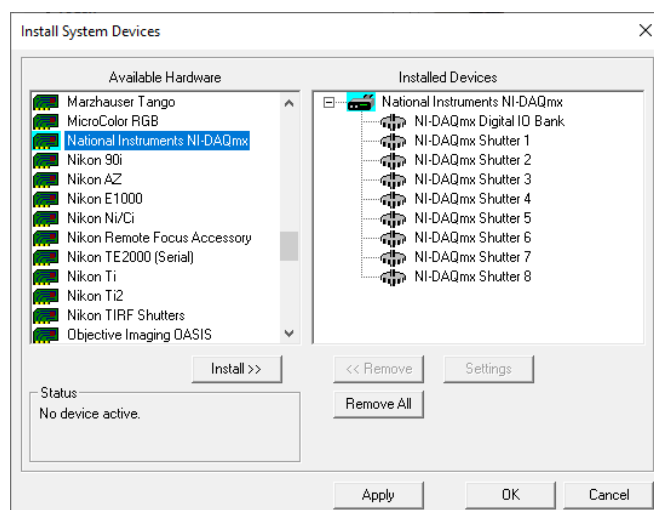
Setup of pE-6501-8 or pE-6501-8-FR in MetaMorph

Once the pE-6501-8 or pE-6501-8-FR drivers have been installed, MetaMorph should be installed if it has not been already. This can be found on the [Molecular Devices](#) website or via a memory key if provided.

Once installed, open the MetaMorph 'Meta Imaging Series Administrator' and select 'Configure Hardware' and 'Install System Devices'

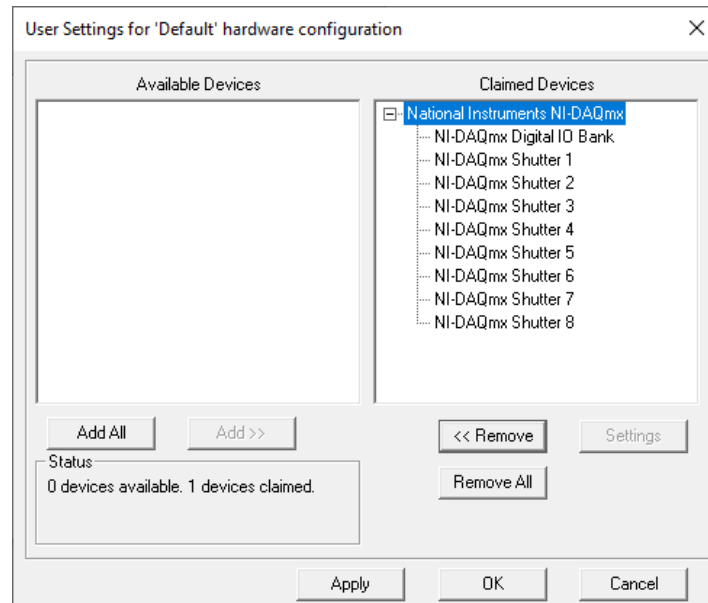


Scroll down to 'National Instruments NI-DAQmx' and select it and click 'Install'. You should now see this under the 'Installed Devices' column. This should have eight shutters available—one for each of the eight LEDs in the pE-800 Series.



Now click 'Apply' and 'OK'.

Click on 'Configure Device' and select 'National Instrument NI-DAQmx' from the Available Devices column. Once highlighted click 'Add' and this will move over to the 'Claimed Devices' column.

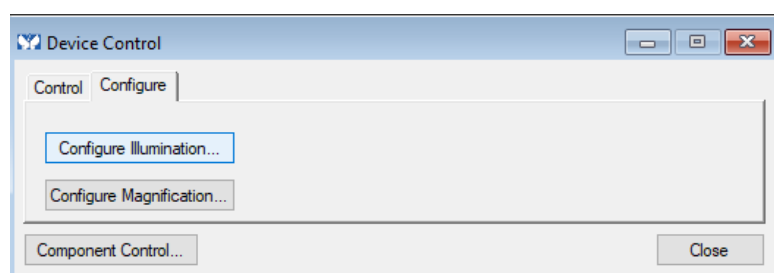


Click 'Apply' and 'OK'.

The Meta Imaging Series Administrator can now be closed by again clicking 'OK'. The pE-6501-8 or pE-6501-8-FR can now be used within MetaMorph.

Configuring the pE-800 Series with the pE-6501-8 or pE-6501-8-FR within MetaMorph

Open MetaMorph and on the top ribbon select 'Devices' and 'Device Control'. In here, go to the 'Configure' tab and select 'Configure Illumination':



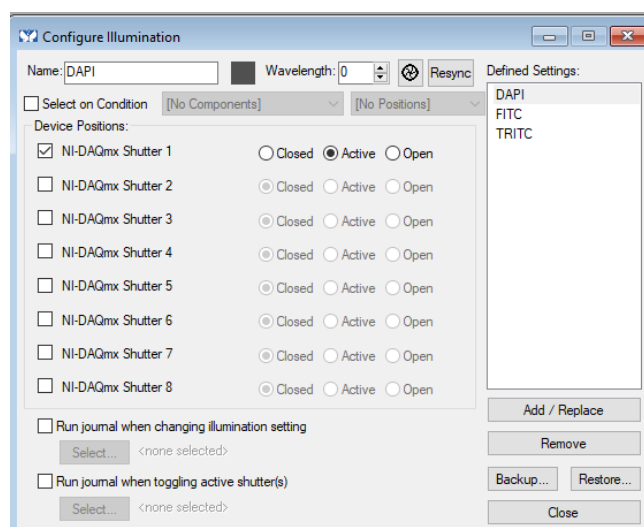
It is now possible to set up different settings for the different LEDs/ wavelengths that can be used in experiments. The different shutters in this list correspond to the different LEDs as in the table below.

pE-6501-8		pE-6501-8-FR	
Shutter	LED	Shutter	LED
Shutter 1	365/400	Shutter 1	340
Shutter 2	435	Shutter 2	380
Shutter 3	460	Shutter 3	435
Shutter 4	500	Shutter 4	470
Shutter 5	550	Shutter 5	500
Shutter 6	580	Shutter 6	550
Shutter 7	635	Shutter 7	580
Shutter 8	740	Shutter 8	635

To configure different settings, first name the configuration you want to set up, and check the shutter of the LEDs to be turned on for this. Once the shutter has been checked, change 'Closed' to 'Active'. This will allow that LED to be triggered on during the experiment.

Once all the LEDs are selected as 'Active' for that particular setting, click 'Add/ Replace' and this will add this into the 'Defined Settings' list.

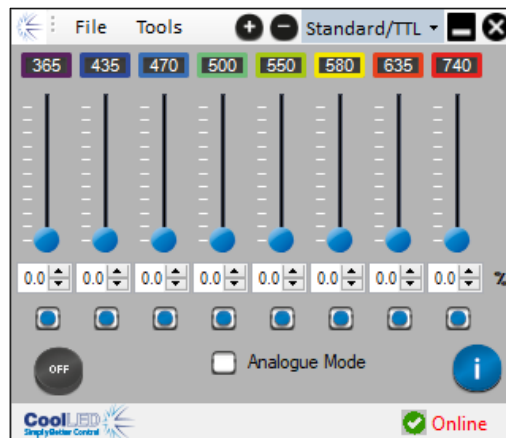
In the example below, the 365 nm LED has been set to active and named 'DAPI', with all other LEDs remaining off. Other settings have also been set up for FITC and TRITC (just using the 470 nm LED and 550 nm LED, respectively), which can be seen under the 'Defined Settings'.



Create as many settings as required. Several LEDs can be set to be triggered on at once, if required. This dialog box can be closed once finished.

As the pE-6501-8 or pE-6501-8-FR gives digital on/ off, the irradiance for the LEDs should be set on the LightBridge software that comes with the pE-800 Series.

The LightBridge software comes on the USB stick that comes with the pE-800 Series or can be downloaded from <https://www.cooled.com/support/imaging-software/>. For more information on the LightBridge software please refer to the pE-800 Series manual.

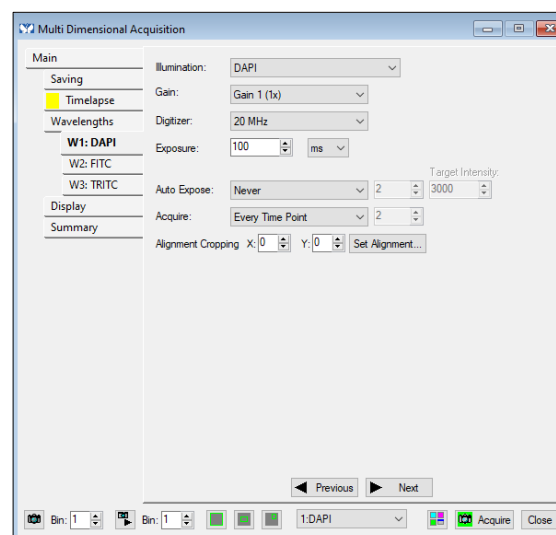


The pE-6501-8 or pE-6501-8-FR can now be used to trigger the pE-800 Series within the MetaMorph software.

Setting up a simple experiment using the pE-800 Series

To create an experiment, select 'Multi-Dimensional Acquisition' from the Apps tab. In the 'Main' tab, set up the type of experiment to be run. Go through the next couple of tabs, changing the parameters to suit the application. Within the 'Wavelengths' tab, set the number of required wavelengths for the experiment. Then select the illumination from the settings created during the setup.

In the example below three wavelengths have been created, and their parameters changed. These are DAPI, FITC and TRITC as setup previously.



Once all wavelengths and their parameters have been set up, click 'Next' to get to the Summary tab, and if all parameters are OK click 'Acquire'. The experiment will run, triggering the LEDs set up previously.

If you have any questions, please contact us at support@cooled.com.