

Imatest Hardware Control README

Download the SDK zip file that corresponds to your OS. Various tools, SDKs and Bindings are provided inside the zip file.

Supported Devices:

- Imatest Light Boxes
- KinoFlo Lighting with EntTec controller
- Motorized Benchtop Test Stand
- Spectral Sensor
- Low Light Sensor
- Motorized Lifting Column
- Thouslite LED Cubes

Setting the License Code:

When running the SDK, a license code needs to be specified at least once in the terminal session you are using, after a successful validation - the license code is saved for future uses. To set a license code set the **environment variable**:

```
HC_API_LICENSECODE="<IMATEST_LICENSECODE>"
```

This can be added to you windows user environment variables. Or used in a terminal on a session by session basis.

For example in a bash terminal, run **export HC_API_LICENSECODE="123456...5432"** before running a script or executable from the SDK (in the same terminal).

PowerShell:

Unset

```
$env :HC_API_LICENSECODE="12345678987654321"
```

Bash:

Unset

```
export HC_API_LICENSECODE="12345678987654321"
```

CMD (Windows Terminal):

```
Unset  
set HC_API_LICENSECODE=12345678987654321
```

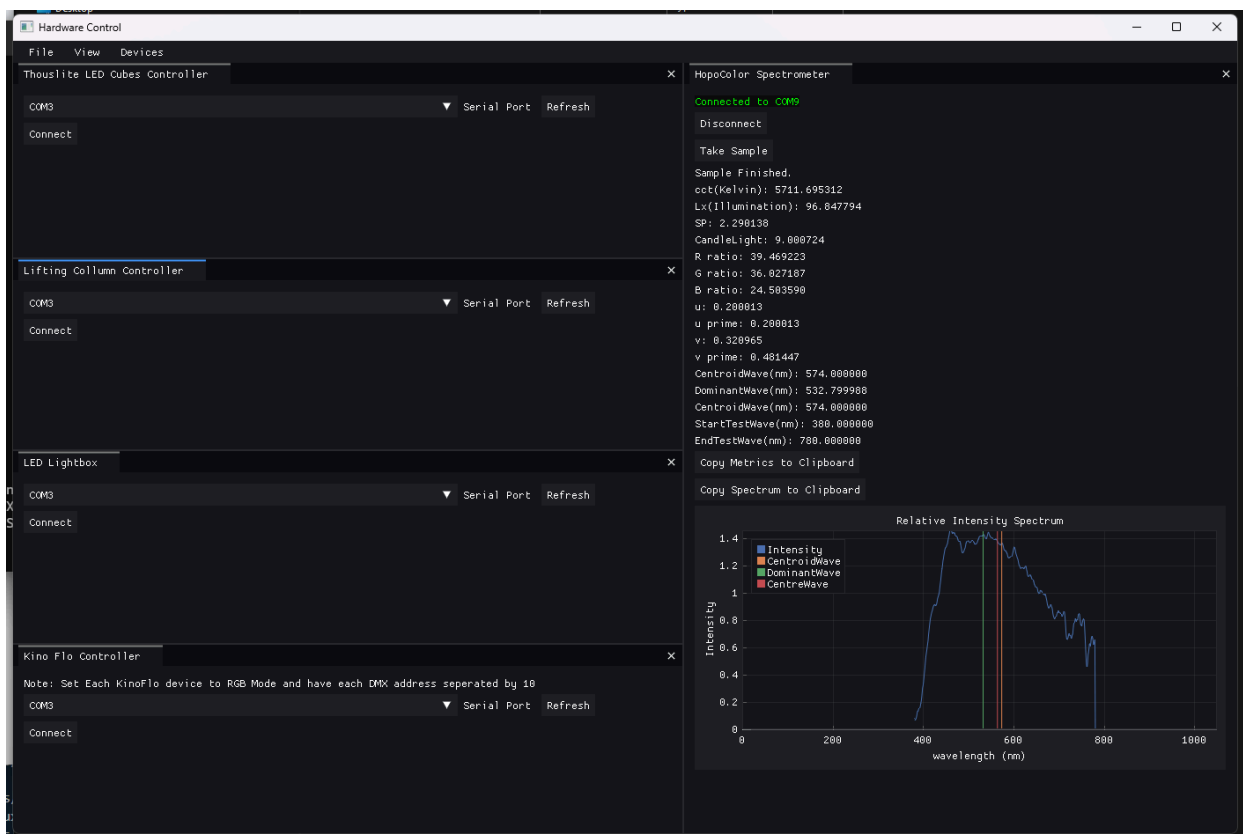
MATLAB:

```
Unset  
setenv("HC_API_LICENSECODE", "12345678987654321");
```

Using the Hardware Control GUI:

Navigate to the bin directory of the SDK. (SDK/bin/x86_64/Release for windows)

Run the HC_API_ControlStudio program. The control studio program can be used to control various supported Imatest devices with a graphical interface:



Development Documentation:

https://www.imatest.com/wp-content/uploads/controlapi-docs/cpp_docs/index.html

https://www.imatest.com/wp-content/uploads/controlapi-docs/python_docs/index.html

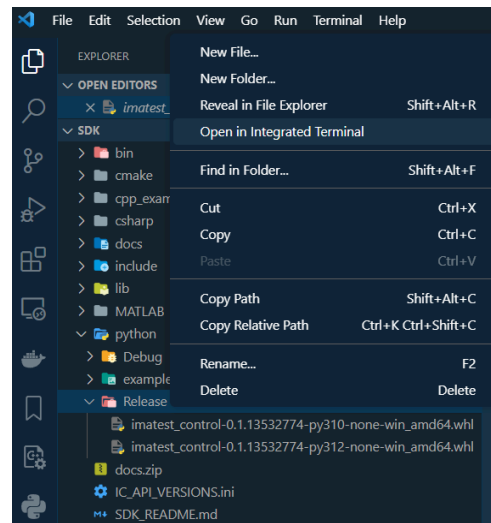
Imatest Hardware Control API Python Setup Guide

Software Resources and Documentation

Set up visual studio code and python or use your preferred python environment.

<https://code.visualstudio.com>

<https://www.python.org/downloads/>

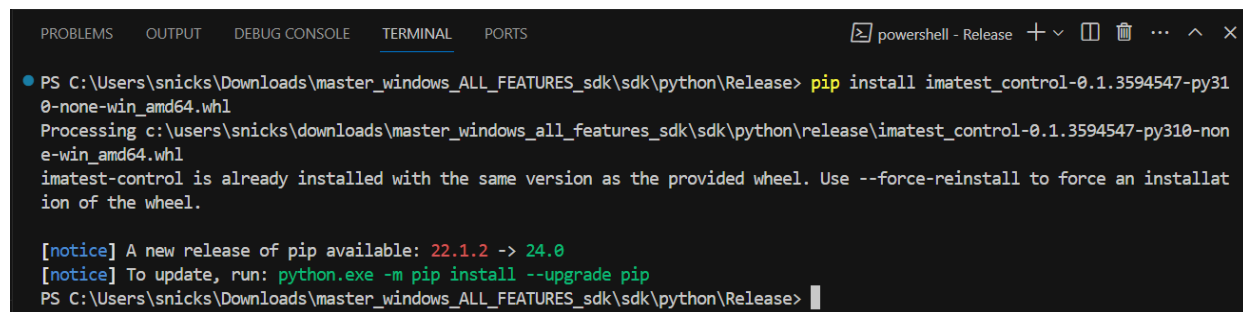


After getting set up with your development environment, open the unzipped SDK folders linked below. Download the appropriate master control api zip file for your operating system:

<https://www.imatest.com/controlAPI>

In Visual Studios, select File>Open Folder, and select the unzipped control api folder. In the Visual Studio explorer window, navigate to **SDK/Python/Releases**. Pick the .whl file that corresponds to the Python version on your system. To install the controlAPI library, open a terminal in visual studio by right clicking the “sdk/python/Releases” folder and selecting “Open in Integrated Terminal.” Use the pip install command in the terminal to install the imatest controlAPI package. For example:

```
pip install  
python/Release/imatest_control-0.1.3594547-py310-none-win_amd64.whl
```



The documentation is linked below for the controlAPI wheel package:

https://www.imatest.com/wp-content/uploads/controlapi-docs/cpp_docs/index.html

https://www.imatest.com/wp-content/uploads/controlapi-docs/python_docs/index.html

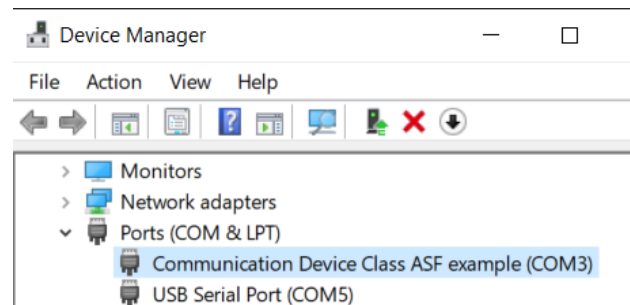
Next right click the Examples folder under Python and select “Open in Integrated Terminal”. In the terminal set the license code set the environment variable

```
$env:HC_API_LICENSECODE=<IMATEST_LICENSECODE>
```

Communication Ports

Some devices require specifying the COM port from within your script. With your hardware device powered on, plug in the USB from the control box to your computer. Determine the COM port using the directions below.

For Windows: Open the Device Manager to determine which COM Ports your computer is using (e.g. “COM3”)



For Mac: Open the Terminal and send the following command to get a list of serial USB devices:

```
ls /dev/tty.*
```

The serial COM ports should look something like the following examples::

```
/dev/tty.usbserial-AC01ZOSX
```

```
/dev/tty.usbmodem141101
```

Select the python script to run, for example the RoboClaw_Example.py script needs a COM port number specified on line 11 in this example file to the one determined. Save the file.

To initialize and run the script right click the “sdk/python/Examples” folder and select “Open in Integrated Terminal.” Then enter the following command with the file you wish to run, in our example we will run RoboClaw_Example.py, and enter.

```
python filename.py
```

The image shows a screenshot of the Visual Studio Code editor. The Explorer pane on the left shows a project structure for 'MASTER_WINDOWS_ALL_FEATURES_SDK' with a 'python' folder containing an 'examples' subfolder. The 'RoboClaw_Example.py' file is selected and open in the editor. The code in the editor is as follows:

```
1  from imatest import control as cntr
2
3  import time
4
5
6  system = cntr.ControlSystem()
7
8
9  #Add RoboClaw Controller
10 roboCnt = cntr.RoboClawController()
11 roboCnt.port = "COM3"
12
13 system.addDeviceController(roboCnt)
14
15 #Add RoboClaw Device On Controller
16 dev1 = cntr.RoboClawDeviceInfo()
17 dev1.alias = "actuator"
18 dev1.positiveTravelDirection = -1
19 dev1.encoderDeadZone = 5
20 #countsPerRot = 32
21 #rotationPerMM = 6.4
22 #dev1.countsPerMM = 32*6.4
23
24 print("counts per mm is " + str(dev1.countsPerMM))
```