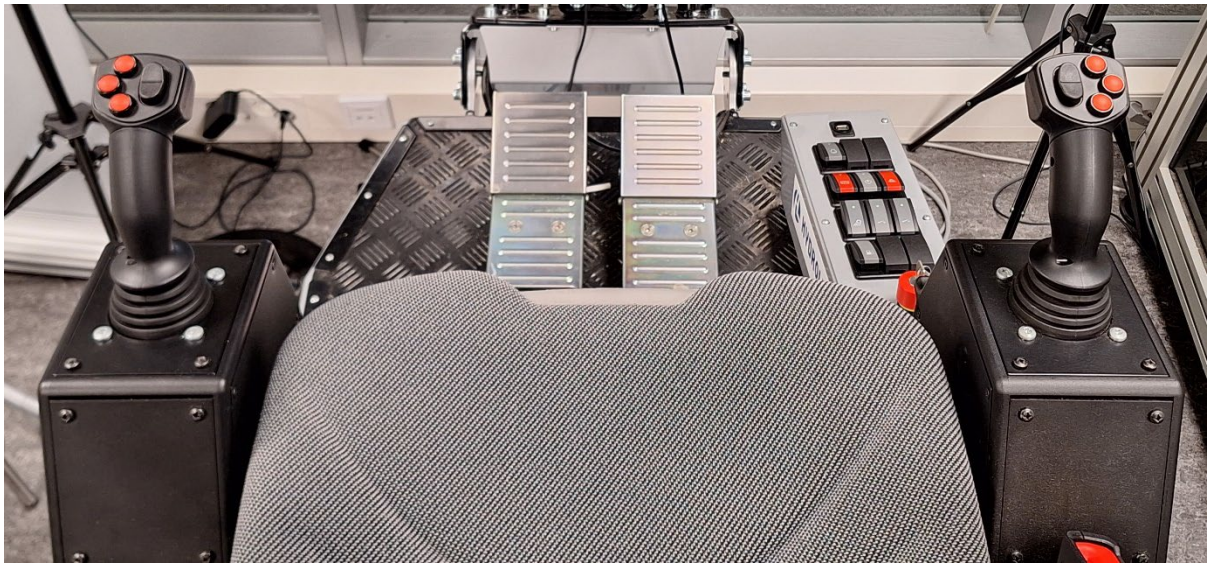
Using Motion Platform as a joystick

Quick Guide



Picture 1 Motion Platform joysticks and pedals

1. Using the joysticks

The joysticks on the Motion Platform offer flexible operation through two primary methods: interfacing with the “vJoy” virtual joystick software or directly accessing data via the provided Python script. This setup encompasses 20 channels, including 8 analog and 12 digital channels.

1.1 vJoy

As of 27.11.2023, the vJoy-virtual joystick can be initialized by running “joystick.bat” file from the desktop. While the .bat file is kept running in the background, the joysticks can be mapped (in-game) and used like a regular gamepad.

1.2 Direct readings

For more specific needs, the joystick values can also be read directly by utilizing *motionplatf_controls* -Python script. As of 27.11.2023, the script can be found in the Motion Platform GitHub -directory.

Please see 2. Channel Mappings for channel numbers.

1.2.1 Utilizing the Python script

1.2.1.1 DataOutput-class

As of 27.11.2023, the *motionplatf_controls* module can be integrated into your projects. To do this, either copy the module or specify its path to your project folder, then import it. Inside this module, you'll find the *DataOutput* class. This class takes two initialization arguments: *simulation_mode* and decimals. The *simulation_mode* is particularly useful for users who do not have access to the necessary National Instruments (NI) hardware or drivers. By setting this argument to *True*, the module operates in a simulation mode, allowing it to run on any computer independently, without requiring the actual Motion Platform hardware or associated drivers. In this mode, the script generates random values, enabling testing and development without the physical equipment.

With the *decimals*-argument user can set how much rounding is done to the values before they are returned. The argument takes in integers, and it sets the number of decimal numbers the script will take account.

Without giving these arguments, the class will be initialized with default values, *simulation_mode=False*, *decimals=3*.

1.2.1.2 Read-method

The *DataOutput* class from the *motionplatf_controls* module features a read method, which can output joystick values. The output can be formatted as a single list (combining all values) or as a tuple containing two separate lists for analog and digital values. The desired output format can be specified using the *combine* argument, which accepts a Boolean value (True/False), If the argument is left empty, the method will default to *combine=True*.

```
1  import motionplatf_controls
2  from time import sleep
3
4  joysticks = motionplatf_controls.DataOutput(simulation_mode=True)
5
6  while True:
7      values = joysticks.read(combine=False)
8      print(values)
9      sleep(0.2)
10
```

Picture 2. Example usage. DataOutput will output a tuple, containing lists for analog and digital values.

Returned values are in float-format, and they will range between -1...+1. Digital Boolean values will change between 0.0 and 1.0. Output will always first contain the 8 analog channels, and then the 12 digital channels.

2. Channel Mappings

Channel	Type	Name
0	A	Right stick L/R
1	A	Right stickU/D
2	A	Right rocker switch
3	A	Left stick L/R
4	A	Left stick U/D
5	A	Left rocker switch
6	A	Right pedal
7	A	Left pedal
8	D	Right stick rocker up
9	D	Right stick rocker down
10	D	Right stick button rear
11	D	Right stick button bottom
12	D	Right stick button top
13	D	Right stick button middle
14	D	Left stick rocker up
15	D	Left stick rocker down
16	D	Left stick button rear
17	D	Left stick button top
18	D	Left stick button bottom
19	D	Left stick button middle