NANOMAGNETICS
INSTRUMENTS

HpSPM+
API MANUAL

Version: 1.0.1

NANOMAGNETICS INSTRUMENTS

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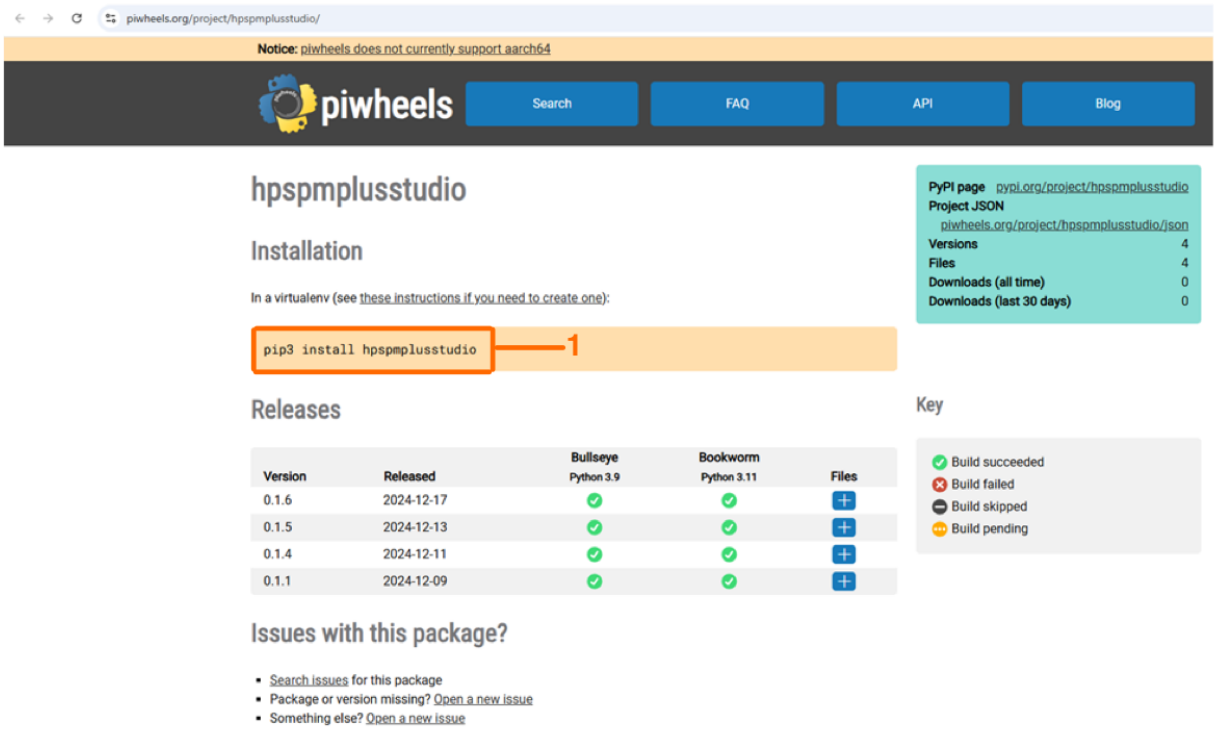
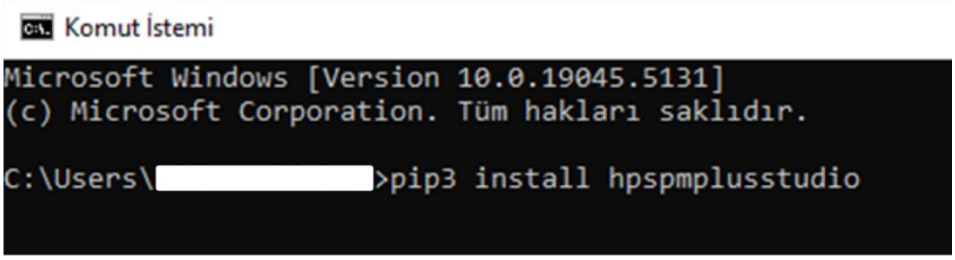
INSTALLATION

Now we will look at the installation process. Go to the web page https://www.piwheels.org/project/hpspmplusstudio/. Copy the command provided on the page for the Python library and install the hpspmplusstudio library by running the command in CMD or any other command-line interface.

Additionally, the command may need to be updated based on the selected version.

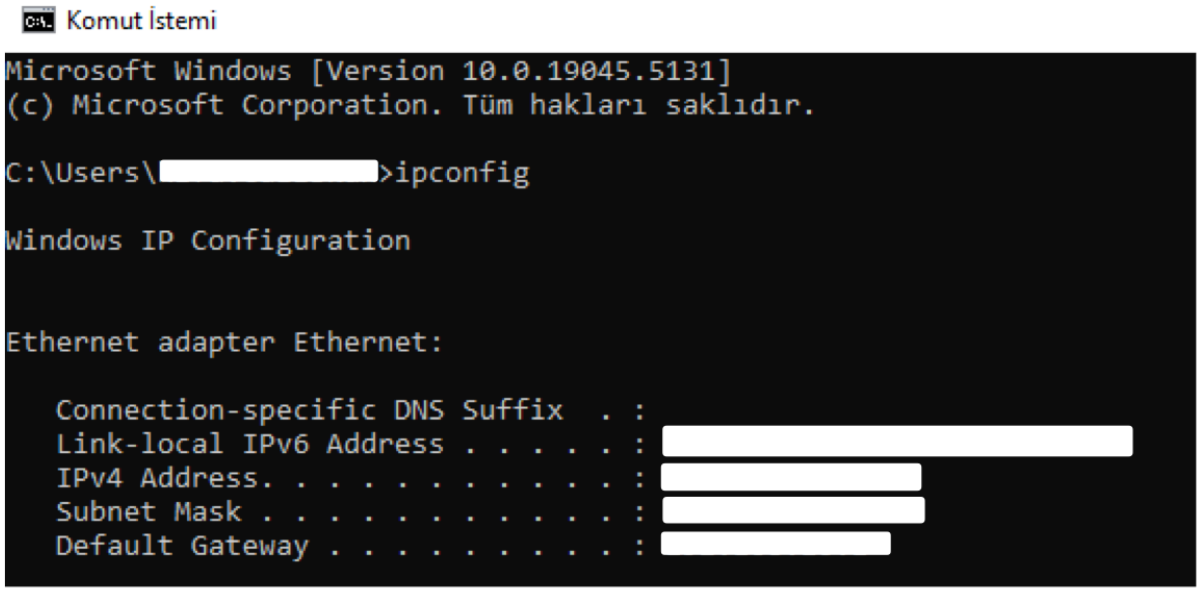




PREPARATION

IP Address Detection

1. Open the **Command Prompt** (Windows).
   - Press Win + R, type **cmd**, and press Enter.
2. Run the following command to retrieve your computer's IP address:
   - Ipconfig
3. Look for the **IPv4 Address** under your active network connection. It will look like this:
   - IPv4 Address. . . . . : 192.x.x.x



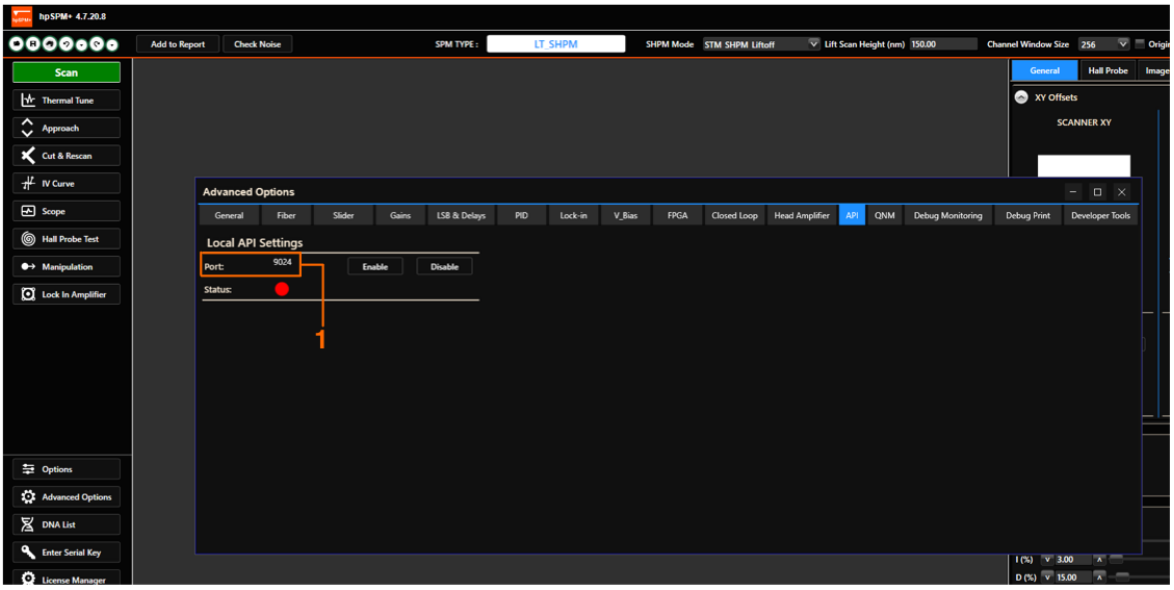
Creating the Python File

- After configuring the software, create a Python file with the **.py** extension (e.g., connect_device.py).
- Add the following code to the file:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

        Endpoint = NMIEndpoint(IP, host)

        Device = NMIDevice(Endpoint)
```

- Replace the following placeholders:
  - **IP**: This is the IP address you obtained using the ipconfig command (e.g., 192.168.x.x).

- **port**: Open the hpSPM+ software, navigate to the "Advanced Options" menu, then go to the "API" tab to check the port number.



- Save the file and ensure your Python environment is properly set up.

Enabling the API in HpSPM+ Software

- Open the **HpSPM+** software again.
- Go to the **Advanced Options** menu.
- In the **Advanced Options** section, find the **API** option and click on it.
- Enable the API by clicking on the **Enable** button.
- Once enabled, you can now use the API to interact with the device using the Python code you created.

ENDPOINTS

OptionsController

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{port}/Options/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{port}/Options/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_Commands())
```

Get SPM Type List

Description This method retrieves the list of available SPM types.

URL http://{IP}:{port}/Options/Get_SPMTypeList

Parameters None

Response

“status”	True or False
“SPMTypes”	The current SPM type name.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{port}/Options/Get_SPMTypeList'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_SPMTypeList())
```

Get AFM Mode List

Description This method retrieves the list of available AFM modes.

URL http://{IP}:{port}/Options/Get_AFMModeList

Parameters None

Response

“status”	True or False
“AFMModes”	A string of AFM modes.
“msg”	"OK!”

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{port}/Options/Get_AFMModeList'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_AFMModeList())
```

Get SPM Type

Description This method retrieves the current SPM type.

URL http://{IP}:{port}/Options/Get_SPMType

Parameters None

Response

“status”	True or False
“SPMType”	The current SPM type name.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{port}/Options/Get_SPMType’

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_SPMType())
```

Get AFM Mode

Description This method retrieves the current AFM mode.

URL http://{IP}:{port}/Options/Get_AFMMode

Parameters None

Response

“status”	True or False
“AFMMode”	The current AFM mode.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{port}/Options/Get_AFMMode’

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_AFMMode())
```

Description This method retrieves the list of available scale units.

URL http://{IP}:{port}/Options/Get_ScaleList

Parameters None

Response

“status”	True or False
“ScaleList”	A string of scale units.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/Options/Get_ScaleList'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_ScaleList())
```

Description This method retrieves the current XY scale unit.

URL http://{IP}:{port}/Options/Get_XYScale

Parameters None

Response

“status”	True or False
“XYScale”	The current XY scale unit (e.g., "µm")
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/Options/Get_XYScale'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_XYScale())
```

Get Z Scale

Description This method retrieves the current Z scale unit.

URL http://{IP}:{port}/Options/Get_ZScale

Parameters None

Response

“status”	True or False
“ZScale”	The current Z scale unit (e.g., "nm")
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri=' http://{IP}:{port}/Options/Get_ZScale'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    print(Options.Get_ZScale())
```

Set SPM Type

Description This method sets the current SPM type.

URL http://{IP}:{port}/Options/Set_SPMType

Parameters spmType (str) The desired SPM type to be set, such as "LT_FABRY_PEROT".

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests
headers = {'accept': 'application/json',}
uri='http://{IP}:{port}/Options/Set_SPMType'
payload = {"reg0": "LT_FABRY_PEROT", "reg1": "", "reg2": "", "reg3": ""}
response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice
if __name__ == "__main__":
    Endpoint = NMIEndpoint(IP,port)
    Device = NMIDevice(Endpoint)
    Options = Device.OPTIONS()
    Options.Set_SPMType("LT_FABRY_PEROT")
    print(Options.Get_SPMType()) # control
```

Set AFM Mode

Description This method sets the current AFM mode.

URL http://{IP}:{port}/Options/Set_AFMMode

Parameters afmModel(string): The desired AFM mode to be set, such as " LFM".

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/Options/Set_AFMMode'

payload = {"reg0": "MFM_TwoPass", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    Options.Set_AFMMode("LFM")

    print(Options.Get_AFMMode()) #control
```

Set XY Scale

Description This method sets the scale unit for the XY axes.

URL http://{IP}:{port}/Options/Set_XYScale

Parameters scale (str) The desired scale unit to be set (e.g., "µm", "nm").

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/Options/Set_XYScale'

payload = {"reg0": "nm", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    Options.Set_XYScale("nm")

    print(Options.Get_XYScale()) #control
```

Set Z Scale

Description This method sets the scale unit for the Z axis.

URL http://{IP}:{port}/Options/Set_ZScale

Parameters

scale (str)	The desired scale unit to be set (e.g., "µm", "nm").	

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/Options/Set_ZScale'

payload = {"reg0": "nm", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Options = Device.OPTIONS()

    Options.Set_ZScale("nm")

    print(Options.Get_ZScale()) #control
```

StatusController

Get Commands

Description This method retrieves the list of available commands from the device.

URL http://{IP}:{port}/APP/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/APP/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Status = Device.STATUS()

    print(Status.Get_Commands())
```

Description This method retrieves the current dashboard status of the device, including connection state, device information, and scanning status.

URL http://{IP}:{port}/APP/Get_DashboardStatus

Parameters None

Response

“status”	True or False
“DeviceType”	Type of the device (e.g., "hpSPM+").
“SPMType”	Scanning probe microscope type (e.g., "LT_SHPM").
“AFMMode”	Current AFM mode (e.g., "STM_SHPM_Liftoff").
“StatusMessage”	Message indicating the connection status (e.g., "Not connected").
“StatusLed”	Status LED state ("True" or "False").
“XOffset”	X-axis offset value (e.g., "0").
“XOffsetUnit”	Unit for the X-offset (e.g., "µm").
“YOffset”	Y-axis offset value (e.g., "0").
“YOffsetUnit”	Unit for the Y-offset (e.g., "µm").
“ZOffset”	Z-axis offset value (e.g., "0").
“ZOffsetUnit”	Unit for the Z-offset (e.g., "nm").
“ScannedLinesPercent”	Percentage of scanned lines completed (e.g., "0").
“ScannedScanCountPercent”	Percentage of scans completed (e.g., "0").
“ScanStatusLed”	True or False
“LandStatus”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/APP/Get_DashboardStatus'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Status = Device.STATUS()

    print(Status.Get_DashboardStatus())
```

Description This method retrieves the current system connection status.

URL http://{IP}:{port}/APP/Get_Status

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{port}/APP/Get_Status'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Status = Device.STATUS()

    print(Status.Get_Status())
```

ScanController

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/Scan/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{port}/Scan/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_Commands())
```

Description This method checks if the device is currently scanning.

URL http://{IP}:{Port}/Scan/Get_IsScanning

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{port}/Scan/Get_IsScanning'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_IsScanning())
```

Get Scan Error

Description This method retrieves the current scan error status.

URL http://{IP}:{Port}/Scan/Get_ScanError

Parameters None

Response

“status”	True or False
"ScanError"	The current scan error status (e.g., "ScanStop_NoFail").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanError'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanError())
```

Get Scan Line Index

Description This method retrieves the current scan line index.

URL http://{IP}:{Port}/Scan/Get_ScanLineIndex

Parameters None

Response

“status”	True or False
“ScanLineIndex”	The current scan line index as a string (e.g., "0").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanLineIndex'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanLineIndex())
```

Description This method retrieves the current scan index.

URL http://{IP}:{Port}/Scan/Get_ScanIndex

Parameters None

Response

“status”	True or False
“ScanIndex“	The current scan index as a string (e.g., "0").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanIndex'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanIndex())
```

Get Scan Index

Description This method retrieves the current scan index.

URL http://{IP}:{Port}/Scan/Get_ScanIndex

Parameters None

Response

“status”	True or False
“ScanIndex“	The current scan index as a string (e.g., "0").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanIndex'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanIndex())
```

Get X Offset

Description This method retrieves the current X-axis offset value.

URL http://{IP}:{Port}/Scan/Get_XOffset

Parameters None

Response

“status”	True or False
“XOffset“	The current X-axis offset value (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_XOffset’

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_XOffset())
```

Description This method retrieves the current Y-axis offset value.

URL http://{IP}:{Port}/Scan/Get_YOffset

Parameters None

Response

“status”	True or False
“YOffset“	The current Y-axis offset value (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_YOffset’

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_YOffset())
```

Description This method retrieves the width of the scan in pixels.

URL http://{IP}:{Port}/Scan/Get_ScanWidthPixel

Parameters None

Response

“status”	True or False
“ScanWidthPixel“	The width of the scan in pixels (e.g., 256).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanWidthPixel’

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanWidthPixel())
```

Get Scan Height Pixel

Description This method retrieves the height of the scan in pixels.

URL http://{IP}:{Port}/Scan/Get_ScanHeightPixel

Parameters None

Response

“status”	True or False
“ScanHeightPixel“	The height of the scan in pixels (e.g., 256).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanHeightPixel’

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanHeightPixel())
```

Description This method retrieves the width of the image in specified units (e.g., nanometers).

URL http://{IP}:{Port}/Scan/Get_ImageWidth

Parameters None

Response

“status”	True or False
“ImageWidth“	The width of the image as a float (e.g., 4799.9999999999991)
“ImageWidthUnit”	The unit of measurement for the image width (e.g., "nm").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ImageWidth'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ImageWidth())
```

Description This method retrieves the width of the image in specified units (e.g., nanometers).

URL http://{IP}:{Port}/Scan/Get_ ImageHeight

Parameters None

Response

“status”	True or False
“ImageHeight“	The height of the image as a float (e.g., 4799.9999999999991)
“ImageHeightUnit”	The unit of measurement for the image height (e.g., "nm").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ ImageHeight '

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ImageHeight())
```

Description This method checks whether the image is square.

URL http://{IP}:{Port}/Scan/Get_IsImageSquare

Parameters None

Response

“status”	True or False
“IsImageSquare”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_IsImageSquare'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_IsImageSquare())
```

Description This method retrieves the current scan angle value.

URL http://{IP}:{Port}/Scan/Get_ScanAngle

Parameters None

Response

“status”	True or False
“ScanAngle”	The current scan angle as an integer (e.g., 270).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanAngle'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanAngle())
```

Get Scan Speed

Description This method retrieves the current scan speed.

URL http://{IP}:{Port}/Scan/Get_ScanSpeed

Parameters None

Response

“status”	True or False
“ScanSpeed”	The current scan speed as a float (e.g., 9999999.9999999963).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanSpeed'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanSpeed())
```

Description This method retrieves the number of averages for the current scan.

URL http://{IP}:{Port}/Scan/Get_ScanNumberOfAverages

Parameters None

Response

“status”	True or False
“ScanNumberOfAverages”	The number of averages as an integer (e.g., 4).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanNumberOfAverages'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanNumberOfAverages())
```

Get Number of Scans

Description This method retrieves the total number of scans configured.

URL http://{IP}:{Port}/Scan/Get_NumberOfScans

Parameters None

Response

“status”	True or False
“NumberOfScans”	The total number of scans as an integer (e.g., 10).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_NumberOfScans'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_NumberOfScans())
```

Get Offset Position

Description This method retrieves the current offset position of the scan.

URL http://{IP}:{Port}/Scan/Get_OffsetPosition

Parameters None

Response

“status”	True or False
“OffsetPosition”	A string indicating the offset position (e.g., "BottomLeft").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_OffsetPosition'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_OffsetPosition())
```

Description This method retrieves the current scan direction.

URL http://{IP}:{Port}/Scan/Get_ScanDirection

Parameters None

Response

“status”	True or False
“ScanDirection”	A string indicating the scan direction (e.g., "BottomToTop").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanDirection'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_ScanDirection())
```

Description This method checks if the current scan is configured as a roundtrip scan.

URL http://{IP}:{Port}/Scan/Get_IsRoundtripScan

Parameters None

Response

“status”	True or False
“IsRoundtripScan”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_IsRoundtripScan'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_IsRoundtripScan())
```

Description This method checks whether saving scanned images is enabled.

URL http://{IP}:{Port}/Scan/Get_IsSaveScannedImages

Parameters None

Response

“status”	True or False
“IsSaveScannedImages”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_IsSaveScannedImages'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    print(Scan.Get_IsSaveScannedImages())
```

Description This method sets whether to use the default scan options for the scan.

URL http://{IP}:{Port}/Scan/Set_UseDefaultScanOptions

Parameters useDefaultScanOptions(bool)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri='http://{IP}:{Port}/Scan/Set_UseDefaultScanOptions'

payload = {"reg0": "True", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_UseDefaultScanOptions(True)
```

Set X Offset

Description This method sets the X-axis offset value for the scan.

URL http://{IP}:{Port}/Scan/Set_XOffset

Parameters	xOffset(float)	The X-axis offset value to set.
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_XOffset'

payload = {"reg0": "1", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_XOffset(1)

    print(Scan.Get_XOffset()) #control
```

Set Y Offset

Description This method sets the Y-axis offset value for the scan.

URL http://{IP}:{Port}/Scan/Set_YOffset

Parameters	yOffset(float)	The Y-axis offset value to set.
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_XOffset'

payload = {"reg0": "1", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_YOffset(1)

    print(Scan.Get_YOffset()) #control
```

Set Y Offset

Description This method sets the Y-axis offset value for the scan.

URL http://{IP}:{Port}/Scan/Set_YOffset

Parameters	yOffset(float)	The Y-axis offset value to set.
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_YOffset'

payload = {"reg0": "1", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_YOffset(1)

    print(Scan.Get_YOffset()) #control
```

Set Scan Width Pixel

Description This method retrieves the width of the scan in pixels.

URL http://{IP}:{Port}/Scan/Get_ScanWidthPixel

Parameters	pixel(int)	The scan width in pixels (e.g., 256).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Get_ScanWidthPixel'

payload = {"reg0": "512", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ScanWidthPixel(1024)

    print(Scan.Get_ScanWidthPixel()) #control
```

Description	This method retrieves the width of the scan in pixels.	
URL	http://{IP}:{Port}/Scan/Set_ScanHeightPixel	
Parameters	pixel(int)	The scan height in pixels (e.g., 256).
Response	“status” “msg”	True or False "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_ScanHeightPixel'

payload = {"reg0": "512", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ScanHeightPixel(1024)

    print(Scan.Get_ScanHeightPixel()) #control
```

Description This method sets the width of the image in the specified unit (e.g., nanometers).

URL http://{IP}:{Port}/Scan/Set_ImageWidth

Parameters	width(float)	The image width value (e.g., 256.0).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_ImageWidth'

payload = {"reg0": "256", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ImageWidth(256)

    print(Scan.Get_ImageWidth()) #control
```

Description This method sets the height of the image in the specified unit (e.g., nanometers).

URL http://{IP}:{Port}/Scan/Set_ImageHeight

Parameters	height(float)	The image height value (e.g., 256.0).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_ImageHeight'

payload = {"reg0": "256", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ImageHeight(256)

    print(Scan.Get_ImageHeight()) #control
```

Set Is Image Square

Description This method sets whether the image should be square.

URL http://{IP}:{Port}/Scan/Set_IsImageSquare

Parameters isImageSquare(bool)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_IsImageSquare'

payload = {"reg0": True, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_IsImageSquare(True)

    print(Scan.Get_IsImageSquare()) #control
```

Description	This method sets the scan angle for the current scan operation.	
URL	http://{IP}:{Port}/Scan/Set_ScanAngle	
Parameters	scanAngle(float)	The scan angle value to set (e.g., 210.0).
Response	“status” “msg”	True or False "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_ScanAngle'

payload = {"reg0": 210, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ScanAngle(210)

    print(Scan.Get_ScanAngle()) #control
```

Description This method sets the scan speed for the current scan operation.

URL http://{IP}:{Port}/Scan/Set_ScanSpeed

Parameters	scanSpeed(float)	The scan speed value to set (e.g., 250.0).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_ScanSpeed'

payload = {"reg0": 250.0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ScanSpeed(250.0)

    print(Scan.Get_ScanSpeed()) #control
```

Description This method sets the number of averages for the current scan.

URL http://{IP}:{Port}/Scan/Set_ScanNumberOfAverages

Parameters numberOfAverage(int) The number of averages to set (e.g., 100).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_ScanNumberOfAverages'

payload = {"reg0": 100, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ScanNumberOfAverages(100)

    print(Scan.Get_ScanNumberOfAverages()) #control
```

Set Offset Position

Description This method sets the offset position for the current scan.

URL http://{IP}:{Port}/Scan/Set_OffsetPosition

Parameters	offsetPosition(str)	The offset position value (e.g., "BottomLeft" or "Center").
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_OffsetPosition'

payload = {"reg0": "Center", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_OffsetPosition("Center")

    print(Scan.Get_OffsetPosition()) #control
```

Description This method sets the scan direction for the current scan operation.

URL http://{IP}:{Port}/Scan/Set_ScanDirection

Parameters	scanDirection(str)	The scan direction value (e.g., "BottomToTop" or "TopToBottom").
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_ScanDirection'

payload = {"reg0": "BottomToTop", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_ScanDirection("BottomToTop")

    print(Scan.Get_ScanDirection()) #control
```

Description This method sets whether the scan should operate in a roundtrip mode.

URL http://{IP}:{Port}/Scan/Set_IsRoundtripScan

Parameters isRoundtripScan(bool)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_IsRoundtripScan'

payload = {"reg0": True, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_IsRoundtripScan(True)

    print(Scan.Get_IsRoundtripScan()) #control
```

Set Is Saved Scanned Images

Description This method sets whether scanned images should be saved.

URL http://{IP}:{Port}/Scan/Set_IsSaveScannedImages

Parameters isSaveImages(bool)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/Set_IsSaveScannedImages'

payload = {"reg0": True, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.Set_IsSaveScannedImages(True)

    print(Scan.Get_IsSaveScannedImages()) #control
```

Start Scan

Description This method starts the scan process.

URL http://{IP}:{Port}/Scan/StartScan

Parameters status(bool)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/StartScan'

payload = {"reg0": True, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.StartScan(True)
```

Stop Scan

Description This method stops the current scan operation.

URL http://{IP}:{Port}/Scan/StopScan

Parameters status(bool)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/Scan/StopScan'

payload = {"reg0": True, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Scan = Device.SCAN()

    Scan.StopScan(True)
```

System Readings Controller

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/SystemReadings/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/SystemReadings/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    SysRead= Device.SYSTEMREADINGS()

    print(SysRead.Get_Commands())
```

Description This method retrieves the current system readings.

URL http://{IP}:{Port}/SystemReadings/Get_SystemReadings

Parameters None

Response

“status”	True or False
“Fnx10”	Voltage (scaled force measurement).
“Fn”	Voltage measurement.
“Fl”	Voltage measurement.
“Ft”	Voltage measurement.
“Spare1, Spare2, Spare4”	Reserved or additional readings.
“It”	Tunneling current (nanoAmps).
“VHall”	Hall voltage.
“IHall”	Hall current.
“Backplane2, Backplane3”	Backplane measurements.
“Vpd”	Photodiode voltage.
“VpdRef”	Reference photodiode voltage.
“VpdSig”	Signal photodiode voltage.
“Vbias”	Bias voltage.
“Lia1RMS”	RMS value of Lock-In Amplifier 1.
“Lia1Phase”	Phase of Lock-In Amplifier 1.
“Lia2RMS”	RMS value of Lock-In Amplifier 2.
“Lia2Phase”	Phase of Lock-In Amplifier 2.
“FastAdc1, FastAdc2”	Fast ADC values.
“Vz, Vx, Vy”	Voltage applied in the X, Y, Z axes.
“DeltaF”	Frequency change.
“FiberPZT”	Fiber PZT value.
“ExternalNPX, ExternalNPY, ExternalNPZ”	External position measurements.
“Spare4_LMT87”	Sensor temperature reading.
“EncoderX, EncoderY, EncoderZ”	Encoder readings.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/SystemReadings/Get_SystemReadings'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    SysRead= Device.SYSTEMREADINGS()

    print(SysRead.Get_SystemReadings())
```

Description This method retrieves the unit text for the system readings.

URL http://{IP}:{Port}/SystemReadings/Get_SystemReadingsUnitText

Parameters None

Response

“status”	True or False
“Fnx10”	V
“Fn”	V
“Fl”	V
“Ft”	V
“Spare1, Spare2, Spare4”	mV
“It”	nA
“VHall”	mV
“IHall”	nA
“Backplane2, Backplane3”	mV
“Vpd”	V
“VpdRef”	V
“VpdSig”	V
“Vbias”	V
“Lia1RMS”	V
“Lia1Phase”	°
“Lia2RMS”	V
“Lia2Phase”	°
“FastAdc1, FastAdc2”	V
“Vz, Vx, Vy”	V
“DeltaF”	Hz
“FiberPZT”	V
“ExternalNPX, ExternalNPY, ExternalNPZ”	-
“Spare4_LMT87”	-
“EncoderX, EncoderY, EncoderZ”	-
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/SystemReadings/Get_SystemReadingsUnitText'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    SysRead= Device.SYSTEMREADINGS()

    print(SysRead.Get_SystemReadingsUnitText()) #control
```

ScannedImagesController

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/ScannedImages/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/ScannedImages/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    ScannedImages = Device.SCANNEDIMAGES()

    print(ScannedImages.Get_Commands())
```

Description This method Retrieves a list of NMI Containers available in the system.

URL http://{IP}:{Port}/ScannedImages/Get_NmiContainerList

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/ScannedImages/Get_NmiContainerList'

payload = payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.get(uri, headers=headers, json=payload)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    ScannedImages = Device.SCANNEDIMAGES()

    print(ScannedImages.Get_NmiContainers())
```

Get Selected Container Image List

Description This method retrieves a list of images from the specified NMI container.

URL http://{IP}:{Port}/ScannedImages/Get_SelectedContainerImageList

Parameters	containerName(str)	The name of the NMI container.
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/ScannedImages/Get_NmiContainerList'

payload = payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.get(uri, headers=headers, json=payload)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    ScannedImages = Device.SCANNEDIMAGES()

    print(ScannedImages.Get_SelectedContainerImageList()) param ?
```

Description This method retrieves a specific image from the specified NMI container by its name.

URL http://{IP}:{Port}/ScannedImages/Get_SelectedContainerImage

Parameters	containerName(str)	The name of the NMI container.
	imageName(str)	The name of the image to fetch from the container.
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/ScannedImages/Get_SelectedContainerImage'

payload = payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.get(uri, headers=headers, json=payload)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    ScannedImages = Device.SCANNEDIMAGES()

    print(ScannedImages.Get_SelectedContainerImage()) param ?
```

Description This metod retrieves a list of forward images stored in a specified NMI Container.

URL http://{IP}:{Port}/ScannedImages/Get_SelectedContainerForwardImageList

Parameters	containerName(str)	The name of the NMI container.
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri=
'http://{IP}:{Port}/ScannedImages/Get_SelectedContainerForwardImageList'

payload = payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.get(uri, headers=headers, json=payload)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    ScannedImages = Device.SCANNEDIMAGES()

    print(ScannedImages.Get_SelectedContainerForwardImageList()) param ?
```

Get Selected Container Backward Image List

Description This method retrieves a list of backward images stored in a specified NMI Container.

URL http://{IP}:{Port}/ScannedImages/Get_SelectedContainerBackwardImageList

Parameters	containerName(str)	The name of the NMI container.
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri =
'http://{IP}:{Port}/ScannedImages/Get_SelectedContainerBackwardImageList'

payload = payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.get(uri, headers=headers, json=payload)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    ScannedImages = Device.SCANNEDIMAGES()

    print(ScannedImages.Get_SelectedContainerBackwardImageList()) param ?
```

XYOffsetController:

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/XYOffset/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_Commands())
```

Description This method checks if an offset update is currently available.

URL http://{IP}:{Port}/XYOffset/Get_IsOffsetUpdateAvailable

Parameters None

Response

“status”	True or False
“IsOffsetUpdateAvailable”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Get_IsOffsetUpdateAvailable'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_IsOffsetUpdateAvailable())
```

Get X Offset

Description This method retrieves the current X-axis offset value.

URL http://{IP}:{Port}/XYOffset/Get_XOffset

Parameters None

Response

"status"	True or False
"XOffset"	The current X-axis offset value (e.g., 0).
"XOffsetPrefix"	Details about the prefix used for the offset value:
○ Prefix :	Unit prefix (e.g., "nano").
○ Symbol :	Symbol of the prefix (e.g., "n").
○ Scalar :	Scalar multiplier for the prefix (e.g., 1.0000000000000001E-09).
"msg"	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Get_XOffset'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_XOffset())
```

Get Y Offset

Description This method retrieves the current Y-axis offset value.

URL http://{IP}:{Port}/XYOffset/Get_YOffset

Parameters None

Response

"status"	True or False
"YOffset"	The current Y-axis offset value (e.g., 0).
"YOffsetPrefix"	Details about the prefix used for the offset value:
○ Prefix :	Unit prefix (e.g., "nano").
○ Symbol :	Symbol of the prefix (e.g., "n").
○ Scalar :	Scalar multiplier for the prefix (e.g., 1.0000000000000001E-09).
"msg"	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Get_YOffset'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_YOffset())
```

Get XY Offset

Description This method retrieves the current X-axis and Y-axis offset values.

URL http://{IP}:{Port}/XYOffset/Get_XYOffset

Parameters None

Response

"status"	True or False
"XOffset"	The current X-axis offset value (e.g., 0).
"XOffsetPrefix"	Details about the prefix used for the X-axis offset:
○ Prefix :	Unit prefix (e.g., "nano").
○ Symbol :	Symbol of the prefix (e.g., "n").
○ Scalar :	Scalar multiplier for the prefix (e.g., 1.0000000000000001E-09).
"XOffsetUnitText"	Unit of measurement for the X-axis offset (e.g., "nm").
"YOffset"	The current Y-axis offset value (e.g., 0).
"YOffsetPrefix"	Details about the prefix used for the Y-axis offset:
○ Prefix :	Unit prefix (e.g., "nano").
○ Symbol :	Symbol of the prefix (e.g., "n").
○ Scalar :	Scalar multiplier for the prefix (e.g., 1.0000000000000001E-09).
"YOffsetUnitText"	Unit of measurement for the Y-axis offset (e.g., "nm").
"msg"	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = http://{IP}:{Port}/XYOffset/Get_XYOffset'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_XYOffset())
```

Get X Offset Limit

Description This method retrieves the positive and negative limit values.

URL http://{IP}:{Port}/XYOffset/Get_XOffsetLimit

Parameters None

Response

“status”	True or False
“XOffsetPositiveLimit”	The positive limit for the X-axis offset (e.g., 49984.794999999962).
“XOffsetNegativeLimit”	The negative limit for the X-axis offset (e.g., -49984.794999999962).
“XOffsetUnitText”	Unit of measurement for the X-axis offset limits (e.g., "nm").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Get_XOffsetLimit'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_XOffsetLimit())
```

Description This method retrieves the positive and negative limit values.

URL http://{IP}:{Port}/XYOffset/Get_YOffsetLimit

Parameters None

Response

“status”	True or False
“YOffsetPositiveLimit”	The positive limit for the Y-axis offset (e.g., 49984.794999999962).
“YOffsetNegativeLimit”	The negative limit for the Y-axis offset (e.g., -49984.794999999962).
“YOffsetUnitText”	Unit of measurement for the Y-axis offset limits (e.g., "nm").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Get_YOffsetLimit'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_YOffsetLimit())
```

Description This method retrieves the positive and negative limit values for both X-axis and Y-axis offsets

URL http://{IP}:{Port}/XYOffset/Get_XYOffsetLimit

Parameters None

Response

“status”	True or False
“XOffsetPositiveLimit”	The positive limit for the X-axis offset (e.g., 49984.794999999962).
“XOffsetNegativeLimit”	The negative limit for the X-axis offset (e.g., -49984.794999999962).
“XOffsetUnitText”	Unit of measurement for the X-axis offset limits (e.g., "nm").
“YOffsetPositiveLimit”	The positive limit for the Y-axis offset (e.g., 49984.794999999962).
“YOffsetNegativeLimit”	The negative limit for the Y-axis offset (e.g., -49984.794999999962).
“YOffsetUnitText”	Unit of measurement for the Y-axis offset limits (e.g., "nm").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Get_XYOffsetLimit'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    print(Offset.Get_XYOffsetLimit())
```

Set X Offset Limit

Description This method sets the X-axis offset value.

URL http://{IP}:{Port}/XYOffset/Set_XOffset

Parameters “xOffset” The X-axis offset value to set. (e.g., 120.5).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Set_XOffset'

payload = {"reg0": 120.5, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    offset = Device.XYOFFSET()

    offset.Set_XOffset(120.5)

    print(offset.Get_XOffset()) #control
```

Set Y Offset Limit

Description This method sets the Y-axis offset value.

URL http://{IP}:{Port}/XYOffset/Set_YOffset

Parameters “yOffset” The Y-axis offset value to set. (e.g., 150.5).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Set_YOffset'

payload = {"reg0": 150.5, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    offset = Device.XYOFFSET()

    offset.Set_YOffset(150.5)

    print(offset.Get_YOffset()) #control
```

Description This method sets the for both X-axis and Y-axis offset value.

URL http://{IP}:{Port}/XYOffset/Set_XYOffset

Parameters

	“xOffset”	The X-axis offset value to set. (e.g., 120.5).
	“yOffset”	The Y-axis offset value to set. (e.g., 150.5).

Response

	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/XYOffset/Set_XYOffset'

payload = {"reg0": 120.5, "reg1": 150.5, "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Offset = Device.XYOFFSET()

    Offset.Set_XYOffset(120.5, 150.5)

    print(Offset.Get_XYOffset()) #control
```

PIDController

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/PID/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    print(Pid.Get_Commands())
```

Get Pid Types

Description This method retrieves the available PID types

URL http://{IP}:{Port}/PID/Get_PidTypes

Parameters None

Response

“status”	True or False
“Types”	A semicolon-separated string listing the available PID types.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    print(Pid.Get_PidTypes())
```

Get PID

Description This method retrieves PID parameters based on the provided PID index.

URL http://{IP}:{Port}/PID/Get_Pid

Parameters

	pidIndex(int)	The index of the PID to retrieve (e.g., 0, 1, 2, 3).

Response

“status”	True or False
“PID”	A dictionary containing the PID parameters for the requested index.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Get_Pid'

payload = payload = {"reg0": 0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.get(uri, headers=headers, json=payload)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    print(Pid.Get_PID(0))
```

Set Pid P Value

Description This method sets the P Value for the specified PID index.

URL http://{IP}:{Port}/PID/Set_Pid_PValue

Parameters

	pidIndex(int)	The index of the PID to retrieve (e.g., 0, 1, 2, 3).
	pValue(int)	The P Value to set (e.g., 10).

Response

	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_PValue'

payload = {"reg0": 0, "reg1": 10, "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_PValue(0,10)

    print(Pid.Get_PID(0).get("P_Value")) #control
```

Description This method sets the I Value for the specified PID index.

URL http://{IP}:{Port}/PID/Set_Pid_IValue

Parameters

	pidIndex(int)	The index of the PID to retrieve (e.g., 0, 1, 2, 3).
	iValue(int)	The I Value to set (e.g., 20).

Response

	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_IValue'

payload = {"reg0": 0, "reg1": 20, "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_IValue(0,20)

    print(Pid.Get_PID(0).get("I_Value")) #control
```

Set Pid D Value

Description This method sets the D Value for the specified PID index.

URL http://{IP}:{Port}/PID/Set_Pid_DValue

Parameters

	pidIndex(int)	The index of the PID to retrieve (e.g., 0, 1, 2, 3).
	dValue(int)	The D Value to set (e.g., 30).

Response

	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_DValue'

payload = {"reg0": 0, "reg1": 30, "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_DValue(0,30)

    print(Pid.Get_PID(0).get("D_Value")) #control
```

Description This method sets the Set Value for the specified PID index.

URL http://{IP}:{Port}/PID/Set_Pid_SetValue

Parameters

pidIndex(int)	The index of the PID to retrieve (e.g., 0, 1, 2, 3).
setValue(float)	The Set Value to set (e.g., 40).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_SetValue'

payload = {"reg0": 0, "reg1": 40, "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_SetValue(0,40)

    print(Pid.Get_PID(0).get("Set_Value")) #control
```

Set Pid Enable

Description This method sets the Set Value for the specified PID index.

URL http://{IP}:{Port}/PID/Set_Pid_Enable

Parameters pidIndex(int) The index of the PID to retrieve (e.g., 0, 1, 2, 3).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_Enable'

payload = {"reg0": 0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_Enable(0)

    print(Pid.Get_PID(0).get("IsEnable")) #control
```

Description This method enables negative polarity for the specified PID index.

URL http://{IP}:{Port}/PID/Set_Pid_NegativePolarity_Enable

Parameters pidIndex(int) The index of the PID to retrieve (e.g., 0, 1, 2, 3).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_NegativePolarity_Enable'

payload = {"reg0": 0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_NegativePolarity_Enable(0)

    print(Pid.Get_PID(0).get("IsNegativePolarity")) #control
```

Description This method enables the Invert Vz functionality for the specified PID index.

URL http://{IP}:{Port}/PID/Set_Pid_InvertVz_Enable

Parameters pidIndex(int) The index of the PID to retrieve (e.g., 0, 1, 2, 3).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_InvertVz_Enable'

payload = {"reg0": 0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_InvertVz_Enable(0)

    print(Pid.Get_PID(0).get("IsInvertedVz")) #control
```

Description This method disables the specified PID based on the provided PID index.

URL http://{IP}:{Port}/PID/Set_Pid_Disable

Parameters pidIndex(int) The index of the PID to retrieve (e.g., 0, 1, 2, 3).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_Disable'

payload = {"reg0": 0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_Disable(0)

    print(Pid.Get_PID(0).get("IsEnable")) #control
```

Description This method disables the negative polarity for the specified PID based on the provided PID index.

URL http://{IP}:{Port}/PID/Set_Pid_NegativePolarity_Disable

Parameters pidIndex(int) The index of the PID to retrieve (e.g., 0, 1, 2, 3).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_NegativePolarity_Disable'

payload = {"reg0": 0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_NegativePolarity_Disable(0)

    print(Pid.Get_PID(0).get("IsNegativePolarity")) #control
```

Description This method disables the Invert Vz functionality for the specified PID based on the provided PID index.

URL http://{IP}:{Port}/PID/Set_Pid_InvertVz_Disable

Parameters pidIndex(int) The index of the PID to retrieve (e.g., 0, 1, 2, 3).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PID/Set_Pid_InvertVz_Disable'

payload = {"reg0": 0, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Pid = Device.PID()

    Pid.Set_Pid_InvertVz_Disable(0)

    print(Pid.Get_PID(0).get("IsInvertedVz")) #control
```

AutoTune Controller

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/AutoTune/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_Commands())
```

Description This method checks if the AutoTune system has been initialized.

URL http://{IP}:{Port}/AutoTune/Get_IsInit

Parameters None

Response

“status”	True or False
“IsInit”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_IsInit'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_IsInit())
```

Description This method retrieves the current excitation value.

URL http://{IP}:{Port}/AutoTune/Get_Excitation

Parameters None

Response

“status”	True or False
“Excitation”	The current excitation value (e.g., 6).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_Excitation'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_Excitation())
```

Description This method retrieves the current excitation value as a percentage.

URL http://{IP}:{Port}/AutoTune/Get_ExcitationPercent

Parameters None

Response

“status”	True or False
“Excitation”	The current excitation value as a percentage (e.g., 30).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_ExcitationPercent'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_ExcitationPercent())
```

Description This method retrieves the starting frequency in hertz (Hz).

URL http://{IP}:{Port}/AutoTune/Get_FrequencyStartInHertz

Parameters None

Response

“status”	True or False
“StartInHertz”	A value representing the starting frequency in hertz (e.g., 100000 Hz).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_FrequencyStartInHertz'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_FrequencyStartInHertz())
```

Description This method retrieves the ending frequency in hertz (Hz).

URL http://{IP}:{Port}/AutoTune/Get_FrequencyEndInHertz

Parameters None

Response

“status”	True or False
“EndInHertz”	A value representing the ending frequency in hertz (e.g., 300000 Hz).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_FrequencyEndInHertz'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_FrequencyEndInHertz())
```

Description This method retrieves the frequency increment in hertz (Hz).

URL http://{IP}:{Port}/AutoTune/Get_FrequencyIncrementInHertz

Parameters None

Response

“status”	True or False
“IncrementInHertz”	A value representing the frequency increment in hertz (e.g.,1000 Hz).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_FrequencyIncrementInHertz'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_FrequencyIncrementInHertz())
```

Description This method retrieves the available slope types.

URL http://{IP}:{Port}/AutoTune/Get_FrequencySlopeTypes

Parameters None

Response

“status”	True or False
“SlopeTypes”	A string listing the available slope types (e.g., "MaxSlope;MinSlope;MaxRms;Custom").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_FrequencySlopeTypes'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_FrequencySlopeTypes())
```

Description This method retrieves the currently selected slope type.

URL http://{IP}:{Port}/AutoTune/Get_FrequencySlopeType

Parameters None

Response

“status”	True or False
“SlopeType”	A string representing the currently selected slope type (e.g., "MinSlope").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_FrequencySlopeType'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_FrequencySlopeType())
```

Description This method checks if the system is currently configured to use the Center Span mode.

URL http://{IP}:{Port}/AutoTune/Get_IsCenterSpan

Parameters None

Response

“status”	True or False
“IsCenterSpan”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_IsCenterSpan'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_IsCenterSpan())
```

Description This method retrieves the start delay value.

URL http://{IP}:{Port}/AutoTune/Get_StartDelay

Parameters None

Response

“status”	True or False
“StartDelay”	A value representing the start delay in milliseconds (e.g., 300 ms).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_StartDelay'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_StartDelay())
```

Description This method retrieves the delay value.

URL http://{IP}:{Port}/AutoTune/Get_Delay

Parameters None

Response

“status”	True or False
“Delay”	A value representing the delay in milliseconds (e.g., 1 ms).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_Delay'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_Delay())
```

Description This method checks if the AutoTune system is currently in the process of tuning.

URL http://{IP}:{Port}/AutoTune/Get_IsTunning

Parameters None

Response

“status”	True or False
“Rms”	A value representing the max rms value (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_IsTunning'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

        print(AutoTune.StartTune())

    time.sleep(5)

    while(True):

        isTunning = (bool)(AutoTune.Get_IsTunning()["IsTunning"])

        if(isTunning==False):

            break

        time.sleep(0.5)

        print(isTunning)
```

Description This method retrieves the maximum rms value.

URL http://{IP}:{Port}/AutoTune/Get_MaxRms

Parameters None

Response

“status”	True or False
“Rms”	A value representing the max rms value (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_MaxRms'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_MaxRms())
```

Description This method retrieves the frequency at which the maximum rms value.

URL http://{IP}:{Port}/AutoTune/Get_MaxRmsFrequency

Parameters None

Response

“status”	True or False
“Frequency”	A value representing the frequency in hertz (Hz) at which the maximum rms was observed (e.g., 30000 Hz).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_MaxRmsFrequency'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_MaxRmsFrequency())
```

Description This method retrieves the frequency at which the minimum slope.

URL http://{IP}:{Port}/AutoTune/Get_MinSlopeFrequency

Parameters None

Response

“status”	True or False
“Frequency”	A numeric value representing the frequency in hertz (Hz) at the minimum slope was observed (e.g., 0 Hz).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_MinSlopeFrequency'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_MinSlopeFrequency())
```

Description This method retrieves the rms value at the frequency where the minimum slope.

URL http://{IP}:{Port}/AutoTune/Get_MinSlopeRms

Parameters None

Response

“status”	True or False
“Rms”	A value representing the rms value at the frequency of the minimum slope (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_MinSlopeRms'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_MinSlopeRms())
```

Description This method retrieves the frequency at which the maximum slope.

URL http://{IP}:{Port}/AutoTune/Get_MaxSlopeFrequency

Parameters None

Response

“status”	True or False
“Frequency”	A numeric value representing the frequency in hertz (Hz) at the maximum slope was observed.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_MaxSlopeFrequency'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_MaxSlopeFrequency())
```

Description This method retrieves the coarse rms series data.

URL http://{IP}:{Port}/AutoTune/Get_CoarseRmsSeries

Parameters None

Response

“status”	True or False
“Keys”	A list of frequency values representing the series keys.
“Values”	A list of rms values corresponding to the keys.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_CoarseRmsSeries'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_CoarseRmsSeries())
```

Description This method retrieves the coarse phase series data.

URL http://{IP}:{Port}/AutoTune/Get_CoarsePhaseSeries

Parameters None

Response

“status”	True or False
“Keys”	A list of frequency values representing the series keys.
“Values”	A list of phase values corresponding to the keys.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_CoarsePhaseSeries'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_CoarsePhaseSeries())
```

Description This method retrieves the fine RMS series data.

URL http://{IP}:{Port}/AutoTune/Get_FineRmsSeries

Parameters None

Response

“status”	True or False
“Keys”	A list of frequency values representing the series keys.
“Values”	A list of rms values corresponding to the keys.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_FineRmsSeries'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_FineRmsSeries())
```

Description This method retrieves the fine phase series data.

URL http://{IP}:{Port}/AutoTune/Get_FinePhaseSeries

Parameters None

Response

“status”	True or False
“Keys”	A list of frequency values representing the series keys.
“Values”	A list of rms values corresponding to the keys.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Get_FinePhaseSeries'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.Get_FinePhaseSeries())
```

Set Initialize

Description This method initializes the AutoTune system.

URL http://{IP}:{Port}/AutoTune/Set_Initialize

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_Initialize'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_Initialize()

    print(AutoTune.Get_IsInit()) #control
```

Description This method sets the excitation percentage.

URL http://{IP}:{Port}/AutoTune/Set_ExcitationPercent

Parameters	excitationPercent(float)	The excitation percentage to set (e.g., 30.0).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_ExcitationPercent'

payload = {"reg0": 30, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_ExcitationPercent(30)

    print(AutoTune.Get_ExcitationPercent()) #control
```

Description This method sets the starting frequency in hertz (Hz).

URL http://{IP}:{Port}/AutoTune/Set_FrequencyStartInHertz

Parameters hertz(float) The starting frequency in hertz (e.g., 100000.0).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_FrequencyStartInHertz'

payload = {"reg0": 100000, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_FrequencyStartInHertz(100000)

    print(AutoTune.Get_FrequencyStartInHertz()) #control
```

Description This method sets the ending frequency in hertz (Hz).

URL http://{IP}:{Port}/AutoTune/Set_FrequencyEndInHertz

Parameters	hertz(float)	The ending frequency in hertz (e.g., 300000.0).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_FrequencyEndInHertz'

payload = {"reg0": 300000, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_FrequencyEndInHertz(300000)

    print(AutoTune.Get_FrequencyEndInHertz()) #control
```

Description This method sets the frequency increment in hertz (Hz).

URL http://{IP}:{Port}/AutoTune/Set_FrequencyIncrementInHertz

Parameters	hertz(float)	The frequency increment in hertz (e.g., 1000.0).
Response	“status”	True or False
	“IncrementInHertz”	The frequency increment in hertz.
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_FrequencyIncrementInHertz'

payload = {"reg0": 1000, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_FrequencyIncrementInHertz(1000)

    print(AutoTune.Get_FrequencyIncrementInHertz()) #control
```

Set Delay

Description This method sets the delay in milliseconds.

URL http://{IP}:{Port}/AutoTune/Set_Delay

Parameters

	delay(float)	The delay time in milliseconds (e.g., 1.0).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_Delay'

payload = {"reg0": 1, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_Delay(1)

    print(AutoTune.Get_Delay()) #control
```

Description This method sets the start delay in milliseconds.

URL http://{IP}:{Port}/AutoTune/Set_StartDelay

Parameters

	delay(float)	The start delay time in milliseconds (e.g., 300.0).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_StartDelay'

payload = {"reg0": 300, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_StartDelay(300)

    print(AutoTune.Get_StartDelay()) #control
```

Set Frequency Slope

Description This method sets the frequency slope type.

URL http://{IP}:{Port}/AutoTune/Set_FrequencySlope

Parameters

	slopeType(str)	The slope type to set (e.g., "MaxSlope", "MinSlope", "MaxRms", "Custom").

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_FrequencySlope'

payload = {"reg0": "MinSlope", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_FrequencySlope("MinSlope")

    print(AutoTune.Get_FrequencySlopeType()) #control
```

Description This method sets the CenterSpanType mode in the auto tune system.

URL http://{IP}:{Port}/AutoTune/Set_CenterSpanType

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_CenterSpanType'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_CenterSpanType()
```

Set Start End Type

Description This method sets the StartEndType mode in the auto tune system.

URL http://{IP}:{Port}/AutoTune/Set_StartEndType

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/Set_StartEndType'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    AutoTune.Set_StartEndType()
```

Start Tune

Description This method initiates the tuning process.

URL http://{IP}:{Port}/AutoTune/StartTune

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/StartTune'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.StartTune())
```

Description This method stops the tuning process.

URL http://{IP}:{Port}/AutoTune/StopTune

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AutoTune/StopTune'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AutoTune = Device.AUTOTUNE()

    print(AutoTune.StopTune())
```

PhotoDiodeController

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/PhotoDiode/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Get_Commands())
```

Description This method checks if the laser is currently enabled.

URL http://{IP}:{Port}/PhotoDiode/Get_IsLaserEnabled

Parameters None

Response

“status”	True or False
“IsLaserEnabled”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Get_IsLaserEnabled'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Get_IsLaserEnabled())
```

Get Laser Power

Description This method retrieves the current laser power percentage.

URL http://{IP}:{Port}/PhotoDiode/Get_LaserPower

Parameters None

Response

“status”	True or False
“LaserPowerPercent”	A value representing the current laser power in percentage (e.g., 33).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Get_LaserPower'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Get_LaserPower())
```

Get Laser RF Frequency

Description This method retrieves the current RF frequency percentage.

URL http://{IP}:{Port}/PhotoDiode/Get_LaserRF_Frequency

Parameters None

Response

“status”	True or False
“RFFrequencyPercent”	A value representing the RF frequency as a percentage (e.g., 1.8).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Get_LaserRF_Frequency'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Get_LaserRF_Frequency())
```

Description This method retrieves the FN10 value.

URL http://{IP}:{Port}/PhotoDiode/Get_FN10

Parameters None

Response

“status”	True or False
“FN10”	A value representing the FN10 parameter (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Get_FN10'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Get_FN10())
```

Get FN

Description This method retrieves the FN value

URL http://{IP}:{Port}/PhotoDiode/Get_FN

Parameters None

Response

“status”	True or False
“FN”	A value representing the FN parameter (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Get_FN'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Get_FN())
```

Get FT

Description This method retrieves the FT value

URL http://{IP}:{Port}/PhotoDiode/Get_FT

Parameters None

Response

“status”	True or False
“FL”	A value representing the FT parameter (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Get_FT'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Get_FT())
```

Set Laser Power

Description This method sets the laser power percentage.

URL http://{IP}:{Port}/PhotoDiode/Set_LaserPower

Parameters	power(float)	The laser power percentage to set (e.g., 20.5).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Set_LaserPower'

payload = {"reg0": 20.5, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    PhotoDiode.Set_LaserPower(20.5)

    print(PhotoDiode.Get_LaserPower())
```

Set Laser RF Frequency

Description This method sets the RF percentage.

URL http://{IP}:{Port}/PhotoDiode/Set_LaserRF_Frequency

Parameters	rf(float)	The RF frequency percentage to set (e.g., 21.5).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Set_LaserRF_Frequency'

payload = {"reg0": 20.5, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    PhotoDiode.Set_LaserRF_Frequency(21.5)

    print(PhotoDiode.Get_LaserRF_Frequency()) #control
```

Null FL

Description This method nullifies the FL value.

URL http://{IP}:{Port}/PhotoDiode/NullFL

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/NullFL'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.NullFL())
```

Description This method nullifies the value.

URL http://{IP}:{Port}/PhotoDiode/Null10FN

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Null10FN'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.Null10FN())
```

Description This method resets the PhotoDiode system to its default state.

URL http://{IP}:{Port}/PhotoDiode/PhotoDiodeReset

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/PhotoDiodeReset'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    print(PhotoDiode.PhotoDiodeReset())
```

Set Laser Enable

Description This method enables the laser.

URL http://{IP}:{Port}/PhotoDiode/Set_LaserEnable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Set_LaserEnable'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    PhotoDiode.Set_LaserEnable()

    print(PhotoDiode.Get_IsLaserEnabled()) #control
```

Set Laser Disable

Description This method disables the laser.

URL http://{IP}:{Port}/PhotoDiode/Set_LaserDisable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/PhotoDiode/Set_LaserDisable'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    PhotoDiode = Device.PHOTODIODE()

    PhotoDiode.Set_LaserDisable()

    print(PhotoDiode.Get_IsLaserEnabled()) #control
```

Hall Card Controller

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/HallCard/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_Commands())
```

Description This method checks whether the hall probe is currently enabled.

URL http://{IP}:{Port}/HallCard/Get_IsHallProbeEnabled

Parameters None

Response

“status”	True or False
“IsHallProbeEnabled”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_IsHallProbeEnabled'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_IsHallProbeEnabled())
```

Get Is Infra Led Red On

Description This method checks whether the infrared led is currently on.

URL http://{IP}:{Port}/HallCard/Get_IsInfraRedLedOn

Parameters None

Response

“status”	True or False
“IsInfraRedLedOn”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_IsInfraRedLedOn'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_IsInfraRedLedOn())
```

Description This method retrieves the current hall range value.

URL http://{IP}:{Port}/HallCard/Get_IHallRange

Parameters None

Response

“status”	True or False
“IHallRange”	A value representing the hall range (e.g., 100).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_IHallRange'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_IHallRange())
```

Description This method retrieves the IHall value, representing the hall current in µA.

URL http://{IP}:{Port}/HallCard/Get_IHall

Parameters None

Response

“status”	True or False
“IHall”	A value representing the hall. (e.g., 0).
“Unit”	The unit of the hall current value (e.g., µA).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_IHall'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_IHall())
```

Description This method retrieves the IHallOffset, the offset value for Hall current, in µA.

URL http://{IP}:{Port}/HallCard/Get_IHallOffset

Parameters None

Response

“status”	True or False
“IHallOffset”	The hall current offset value (e.g., 3).
“Unit”	The unit of the hall current offset (e.g., µA).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_IHallOffset'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_IHallOffset())
```

Get R Hall

Description This method Retrieves the RHall value, representing the Hall resistance in Ω/G.

URL http://{IP}:{Port}/HallCard/Get_RHall

Parameters None

Response

“status”	True or False
“RHall”	The hall resistance value (e.g., 3).
“Unit”	The unit of the hall resistance (e.g., Ω/G).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_RHall'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_RHall())
```

Description This method retrieves the hall voltage value from the system.

URL http://{IP}:{Port}/HallCard/Get_VHall

Parameters None

Response

“status”	True or False
“VHall”	The hall voltage value (e.g., 0.001534703).
“Unit”	The unit of the hall voltage (e.g., V).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_VHall'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_VHall())
```

Description This method retrieves the BHall value from the system.

URL http://{IP}:{Port}/HallCard/Get_BHall

Parameters None

Response

“status”	True or False
“BHall”	The measured magnetic flux density value (e.g., -0.0014980798562724048).
“Unit”	The unit of the magnetic flux density (e.g., G).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_BHall'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_BHall())
```

Get Hall Amplitude Gain

Description This method retrieves the Hall amplitude gain value.

URL http://{IP}:{Port}/HallCard/Get_HallAmplitudeGain

Parameters None

Response

“status”	True or False
“HallAmplitudeGain”	The amplification factor for the Hall signal (e.g., 100).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_HallAmplitudeGain'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_HallAmplitudeGain())
```

Description This method retrieves the hall amplitude bandwidth value.

URL http://{IP}:{Port}/HallCard/Get_HallAmplitudeBandwidth

Parameters None

Response

“status”	True or False
“HallAmplitudeBandwidth”	The bandwidth of the hall signal's amplitude (e.g., 1).
“Unit”	The unit of measurement for the bandwidth (e.g., Hz).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_HallAmplitudeBandwidth'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_HallAmplitudeBandwith())
```

Description This method retrieves the current coil voltage value.

URL http://{IP}:{Port}/HallCard/Get_CoilVoltage

Parameters None

Response

“status”	True or False
“CoilVoltage”	Coil voltage value (e.g., 3).
“Unit”	Measurement unit (e.g., V).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_CoilVoltage'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_CoilVoltage())
```

Description This method retrieves the current coil voltage rate value.

URL http://{IP}:{Port}/HallCard/Get_CoilVoltageRate

Parameters None

Response

“status”	True or False
“CoilVoltageRate”	Rate of voltage change (e.g., 0.6).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Get_CoilVoltageRate'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    print(HallCard.Get_CoilVoltageRate())
```

Description This method sets the IHall value.

URL http://{IP}:{Port}/HallCard/Set_IHall

Parameters current(float)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_IHall'

payload = {"reg0": 2, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_IHall(2)

    print(HallCard.Get_IHall()) #control
```

Set I Hall Offset

Description This method sets offset value for the I Hall.

URL http://{IP}:{Port}/HallCard/Set_IHallOffset

Parameters offset(float)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_IHallOffset'

payload = {"reg0": 3, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_IHallOffset(3)

    print(HallCard.Get_IHallOffset()) #control
```

Set R Hall

Description This method sets the R Hall.

URL http://{IP}:{Port}/HallCard/Set_RHall

Parameters rhall(float)

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_RHall'

payload = {"reg0": 3, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_RHall(3)

    print(HallCard.Get_RHall()) #control
```

Set Enable Hall Probe

Description This method enables the Hall Probe in the HallCard system.

URL http://{IP}:{Port}/HallCard/Set_EnableHallProbe

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_EnableHallProbe'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_EnableHallProbe()

    print(HallCard.Get_IsHallProbeEnabled()) #control
```

Description This method disables the Hall Probe in the HallCard system.

URL http://{IP}:{Port}/HallCard/Set_DisableHallProbe

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_DisableHallProbe'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_DisableHallProbe()

    print(HallCard.Get_IsHallProbeEnabled()) #control
```

Set Enable IR Led

Description This method enables the IR LED.

URL http://{IP}:{Port}/HallCard/Set_EnableIRLed

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_EnableIRLed'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_EnableIRLed()

    print(HallCard.Get_IsInfraRedLedOn()) #control
```

Set Disable IR Led

Description This method disables the IR LED.

URL http://{IP}:{Port}/HallCard/Set_DisableIRLed

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_DisableIRLed'

payload = {"reg0": "", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_DisableIRLed()

    print(HallCard.Get_IsInfraRedLedOn()) #control
```

Description This method sets the hall amplitude gain value.

URL http://{IP}:{Port}/HallCard/Set_HallAmplitudeGain

Parameters	gain(int)	The gain value to set for the hall. (e.g., 100).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_HallAmplitudeGain'

payload = {"reg0": 100, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_HallAmplitudeGain(100)

    print(HallCard.Get_HallAmplitudeGain()) #control
```

Description This method sets the hall amplitude bandwidth value.

URL http://{IP}:{Port}/HallCard/Set_HallAmplitudeBandwidth

Parameters	bandwidth(int)	The bandwidth value to set for the hall. (e.g., 1).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_HallAmplitudeBandwidth'

payload = {"reg0": 1, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_HallAmplitudeBandwidth(1)

    print(HallCard.Get_HallAmplitudeBandwith()) #control
```

Description This method sets the voltage value applied to the coil.

URL http://{IP}:{Port}/HallCard/Set_CoilVoltage

Parameters	voltage(float)	The voltage value to set for the coil. (e.g., 3).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_CoilVoltage'

payload = {"reg0": 3, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_CoilVoltage(3)

    print(HallCard.Get_CoilVoltage()) #control
```

Description This method sets the rate at which the coil voltage changes.

URL http://{IP}:{Port}/HallCard/Set_CoilVoltageRate

Parameters	rate(float)	The voltage value to set for the coil. (e.g., 0.6).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/Set_CoilVoltageRate'

payload = {"reg0": 0.6, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.Set_CoilVoltageRate(0.6)

    print(HallCard.Get_CoilVoltageRate()) #control
```

Description This method resets the hall offset value.

URL http://{IP}:{Port}/HallCard/NullHallOffset

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/HallCard/NullHallOffset'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    HallCard = Device.HALLCARD()

    HallCard.NullHallOffset()
```

Bias Controller

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/VBias/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    print(VBias.Get_Commands())
```

Description This method retrieves the current DC offset value.

URL http://{IP}:{Port}/VBias/Get_DCOffset

Parameters None

Response

“status”	True or False
“DCOffset”	A value representing the DC offset.
“Unit”	The unit of measurement.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Get_DCOffset'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    print(VBias.Get_DCOffset())
```

Description This method retrieves the current AC amplitude value.

URL http://{IP}:{Port}/VBias/Get_ACAmplitude

Parameters None

Response

“status”	True or False
“ACAmplitude”	A value representing the AC amplitude.
“Unit”	The unit of measurement.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Get_ACAmplitude'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    print(VBias.Get_ACAmplitude())
```

Description This method retrieves the current AC frequency value.

URL http://{IP}:{Port}/VBias/Get_ACFrequency

Parameters None

Response

“status”	True or False
“ACFrequency”	A value representing the AC frequency.
“Unit”	The unit of measurement.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Get_ACFrequency'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    print(VBias.Get_ACFrequency())
```

Description This method retrieves the minimum allowable DC offset value.

URL http://{IP}:{Port}/VBias/Get_MinDCOffset

Parameters None

Response

“status”	True or False
“MinDCOffset”	A value representing the minimum allowable DC offset.
“Unit”	The unit of measurement.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Get_MinDCOffset'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    print(VBias.Get_MinDCOffset())
```

Description This method retrieves the maximum allowable DC offset value.

URL http://{IP}:{Port}/VBias/Get_MaxDCOffset

Parameters None

Response

“status”	True or False
“MaxDCOffset”	A value representing the maximum allowable DC offset.
“Unit”	The unit of measurement.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Get_MaxDCOffset'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    print(VBias.Get_MaxDCOffset())
```

Description This method sets the DC offset value.

URL http://{IP}:{Port}/VBias/Set_DCOffset

Parameters	dcOffset(float)	The desired DC offset value (e.g., 5).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Set_DCOffset'

payload = {"reg0": 5, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    VBias.Set_DCOffset(5)

    print(VBias.Get_DCOffset()) #control
```

Description	This method sets the AC amplitude value	
URL	http://{IP}:{Port}/VBias/Set_ACAmplitude	
Parameters	amplitude(float)	The desired AC amplitude value (e.g., 5).
Response	“status” “msg”	True or False "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Set_ACAmplitude'

payload = {"reg0": 5, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    VBias.Set_ACAmplitude(5)

    print(VBias.Get_ACAmplitude()) #control
```

Description This method sets the AC frequency value

URL http://{IP}:{Port}/VBias/Set_ACFrequency

Parameters	frequency(float)	The desired AC frequency value (e.g., 30000).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/VBias/Set_ACFrequency'

payload = {"reg0": 30000, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    VBias = Device.VBIAS()

    VBias.Set_ACFrequency(30000)

    print(VBias.Get_ACFrequency()) #control
```

Fiber Controller

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/FiberCard/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_Commands())
```

Description This method checks whether the laser is currently turned on.

URL http://{IP}:{Port}/FiberCard/Get_IsLaserOn

Parameters None

Response

“status”	True or False
“IsLaserOn”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_IsLaserOn'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_IsLaserOn())
```

Description This method checks whether the laser fan is currently turned on

URL http://{IP}:{Port}/FiberCard/Get_IsLaserFanOn

Parameters None

Response

“status”	True or False
“IsLaserFanOn”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_IsLaserFanOn'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_IsLaserFanOn())
```

Description This method retrieves the current setpoint value of the laser power.

URL http://{IP}:{Port}/FiberCard/Get_LaserPowerSetPoint

Parameters None

Response

“status”	True or False
“LaserPowerSetPoint”	A value representing the laser power setpoint value. (e.g., 41).
“Unit”	The unit of the setpoint value, typically %.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_LaserPowerSetPoint'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_LaserPowerSetPoint())
```

Description This method retrieves the current laser power.

URL http://{IP}:{Port}/FiberCard/Get_LaserPower

Parameters None

Response

“status”	True or False
“LaserPower”	A value representing the laser power value. (e.g., 0).
“Unit”	The unit of the power value.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_LaserPower'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_LaserPower())
```

Description This method checks whether the RF modulator is currently turned on.

URL http://{IP}:{Port}/FiberCard/Get_IsRFModulatorOn

Parameters None

Response

“status”	True or False
“IsRFModulatorOn”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_IsRFModulatorOn'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_IsRFModulatorOn())
```

Description This method retrieves the current DigiPOT value.

URL http://{IP}:{Port}/FiberCard/Get_RFModulatorAmplitudeDigiPOT

Parameters None

Response

“status”	True or False
“RFModulatorAmplitudeDigiPOT”	A value representing the amplitude setting of the RF modulator. (e.g., -20).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_RFModulatorAmplitudeDigiPOT'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_RFModulatorAmplitudeDigiPOT())
```

Description This method retrieves the current digipot value for the RF modulator frequency

URL http://{IP}:{Port}/FiberCard/Get_RFModulatorFrequencyDigiPOT

Parameters None

Response

“status”	True or False
“RFModulatorFrequencyDigiPOT”	A value representing the frequency setting of the RF modulator. (e.g., 197).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_RFModulatorFrequencyDigiPOT'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_RFModulatorFrequencyDigiPOT())
```

Description This method retrieves the current gain value of the signal photodiode.

URL http://{IP}:{Port}/FiberCard/Get_SignalPhotoDiodeGain

Parameters None

Response

“status”	True or False
“SignalPhotoDiodeGain”	A value representing the gain of the signal photodiode. (e.g., 1).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_SignalPhotoDiodeGain'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_SignalPhotoDiodeGain())
```

Description This method retrieves the current gain value of the reference photodiode.

URL http://{IP}:{Port}/FiberCard/Get_ReferancePhotoDiodeGain

Parameters None

Response

“status”	True or False
“ReferancePhotoDiodeGain”	A value representing the gain of the reference photodiode. (e.g., 10).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_ReferancePhotoDiodeGain'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_ReferancePhotoDiodeGain())
```

Get Fiber PZT Voltage

Description This method retrieves the current voltage applied to the Fiber PZT.

URL http://{IP}:{Port}/FiberCard/Get_FiberPZTVoltage

Parameters None

Response

“status”	True or False
“FiberPZTVoltage”	A value representing the voltage applied to the Fiber PZT. (e.g., 30).
“Unit”	The unit of the voltage value, typically volts (V).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_FiberPZTVoltage'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_FiberPZTVoltage())
```

Get Quadlock Status

Description This method retrieves the current status of the Quadlock.

URL http://{IP}:{Port}/FiberCard/Get_QuadlockStatus

Parameters None

Response

“status”	True or False
“QuadlockStatus”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_QuadlockStatus'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_QuadlockStatus())
```

Description This method retrieves the enablement status of the Quadlock mechanism.

URL http://{IP}:{Port}/FiberCard/Get_IsEnableQuadlock

Parameters None

Response

“status”	True or False
“IsEnableQuadlock”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_IsEnableQuadlock'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_IsEnableQuadlock())
```

Description This method retrieves the rescan enablement status of the Quadlock mechanism.

URL http://{IP}:{Port}/FiberCard/Get_IsRescanQuadlockEnable

Parameters None

Response

“status”	True or False
“IsRescanQuadlockEnable”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Get_IsRescanQuadlockEnable'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.Get_IsRescanQuadlockEnable())
```

Set Laser Enable

Description This method enables the laser.

URL http://{IP}:{Port}/FiberCard/Set_LaserEnable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_LaserEnable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_LaserEnable()

    print(Fiber.Get_IsLaserOn()) #control
```

Set Laser Disable

Description This method disables the laser.

URL http://{IP}:{Port}/FiberCard/Set_LaserDisable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_LaserDisable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_LaserDisable()

    print(Fiber.Get_IsLaserOn()) #control
```

Set Laser Fan Enable

Description This method enables the laser fan.

URL http://{IP}:{Port}/FiberCard/Set_LaserFanEnable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_LaserFanEnable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_LaserFanEnable()

    print(Fiber.Get_IsLaserFanOn()) #control
```

Set Laser Fan Disable

Description This method disables the laser fan.

URL http://{IP}:{Port}/FiberCard/Set_LaserFanDisable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_LaserFanDisable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_LaserFanDisable()

    print(Fiber.Get_IsLaserFanOn()) #control
```

Set Laser Power Set Point

Description This method sets the laser power setpoint.

URL http://{IP}:{Port}/FiberCard/Set_LaserPowerSetPoint

Parameters	setpoint(float)	The desired laser power setpoint as a percentage (e.g., 40).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_LaserPowerSetPoint'

payload = {"reg0": 40, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_LaserPowerSetPoint(40.0)

    print(Fiber.Get_LaserPowerSetPoint()) #control
```

Description This method sets the gain of the signal photodiode.

URL http://{IP}:{Port}/FiberCard/Set_SignalPhotoDiodeGain

Parameters digipot(int) The digipot value to set for the signal photodiode gain. (e.g., 1).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_SignalPhotoDiodeGain'

payload = {"reg0": 1, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_SignalPhotoDiodeGain(1)

    print(Fiber.Get_SignalPhotoDiodeGain()) #control
```

Description This method sets the gain of the reference photodiode

URL http://{IP}:{Port}/FiberCard/Set_ReferancePhotoDiodeGain

Parameters

digipot(int)	The DigiPOT value to set for the reference photodiode gain. (e.g., 10).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_ReferancePhotoDiodeGain'

payload = {"reg0": 10, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_ReferancePhotoDiodeGain(10)

    print(Fiber.Get_ReferancePhotoDiodeGain()) #control
```

Description This method sets the voltage applied to the Fiber PZT.

URL http://{IP}:{Port}/FiberCard/Set_FiberPZTVoltage

Parameters

	pzt(float)	The desired voltage value for the Fiber PZT. (e.g., 20).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_FiberPZTVoltage'

payload = {"reg0": 20, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_FiberPZTVoltage(20)

    print(Fiber.Get_ReferancePhotoDiodeGain()) #control
```

Description This method sets the voltage applied to the Fiber PZT.

URL http://{IP}:{Port}/FiberCard/Set_FiberPZTVoltage

Parameters

	pzt(float)	The desired voltage value for the Fiber PZT. (e.g., 20).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_FiberPZTVoltage'

payload = {"reg0": 20, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_FiberPZTVoltage(20)

    print(Fiber.Get_ReferancePhotoDiodeGain()) #control
```

Set Quadlock Enable

Description This method enables the quadlock mechanism.

URL http://{IP}:{Port}/FiberCard/Set_QuadlockEnable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_QuadlockEnable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_QuadlockEnable()

    print(Fiber.Get_IsEnableQuadlock()) #control
```

Description This method disables the quadlock mechanism.

URL http://{IP}:{Port}/FiberCard/Set_QuadlockDisable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_QuadlockDisable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_QuadlockDisable()

    print(Fiber.Get_IsEnableQuadlock()) #control
```

Set Rescan Quadlock Enable

Description This method enables the rescan functionality of the quadlock mechanism.

URL http://{IP}:{Port}/FiberCard/Set_RescanQuadlockEnable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_RescanQuadlockEnable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_RescanQuadlockEnable()

    print(Fiber.Get_IsRescanQuadlockEnable()) #control
```

Description This method disables the rescan functionality of the quadlock mechanism.

URL http://{IP}:{Port}/FiberCard/Set_RescanQuadlockDisable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_RescanQuadlockDisable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_RescanQuadlockDisable()

    print(Fiber.Get_IsRescanQuadlockEnable()) #control
```

Set RF Modulator Enable

Description This method enables the RF modulator.

URL http://{IP}:{Port}/FiberCard/Set_RFModulatorEnable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_RFModulatorEnable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_RFModulatorEnable()

    print(Fiber.Get_IsRFModulatorOn()) #control
```

Set RF Modulator Disable

Description This method disables the RF modulator.

URL http://{IP}:{Port}/FiberCard/Set_RFModulatorDisable

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_RFModulatorEnable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_RFModulatorDisable()

    print(Fiber.Get_IsRFModulatorOn()) #control
```

Description This method sets the amplitude of the RF modulator.

URL http://{IP}:{Port}/FiberCard/Set_RFModulatorAmplitudeDigiPOT

Parameters digipot(int) The digipot value to set for the RF modulator amplitude. (e.g., 6).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_RFModulatorAmplitudeDigiPOT'

payload = {"reg0": 6, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_RFModulatorAmplitudeDigiPOT(6)

    print(Fiber.Get_RFModulatorAmplitudeDigiPOT()) #control
```

Description This method sets the frequency of the RF modulator.

URL http://{IP}:{Port}/FiberCard/Set_RFModulatorAmplitudeDigiPOT

Parameters digipot(int) The digipot value to set for the RF modulator frequency. (e.g., 195).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/Set_RFModulatorFrequencyDigiPOT'

payload = {"reg0": 195, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    Fiber.Set_RFModulatorFrequencyDigiPOT(195)

    print(Fiber.Get_RFModulatorFrequencyDigiPOT()) #control
```

Description This method resets or nullifies the fiber settings.

URL http://{IP}:{Port}/FiberCard/NullFiber

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/FiberCard/NullFiber'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    Fiber = Device.FIBERCARD()

    print(Fiber.NullFiber())
```

Adjust Fiber Controller

Get Commands

Description This method retrieves the list of available commands.

URL http://{IP}:{Port}/AdjustFiber/Get_Commands

Parameters None

Response

“status”	True or False
“Commands”	List of available commands.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_Commands'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_Commands())
```

Description This method checks if the adjust fiber system has been initialized and is ready for operation.

URL http://{IP}:{Port}/AdjustFiber/Get_IsInit

Parameters None

Response

“status”	True or False
“IsInit”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_IsInit'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_IsInit())
```

Description This method checks whether the adjust fiber system is currently running a process or operation.

URL http://{IP}:{Port}/AdjustFiber/Get_IsRunning

Parameters None

Response

“status”	True or False
“IsRunning”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_IsRunning'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_IsRunning())
```

Description This method retrieves the number of samples currently set.

URL http://{IP}:{Port}/AdjustFiber/Get_NumSamples

Parameters None

Response

“status”	True or False
“NumSamples”	The number of samples used by the system (e.g., 256).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_NumSamples'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_NumSamples())
```

Description This method retrieves the number of average currently set.

URL http://{IP}:{Port}/AdjustFiber/Get_NumAvg

Parameters None

Response

“status”	True or False
“NumAvg”	The number of averages applied in the system (e.g., 6).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_NumAvg'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_NumAvg())
```

Description This method retrieves the delay value used by the adjust fiber system.

URL http://{IP}:{Port}/AdjustFiber/Get_Delay

Parameters None

Response

“status”	True or False
“Delay”	The delay value applied in the system (e.g., 250).
“Unit”	The unit of the delay value, typically µs (microseconds).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_Delay'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_Delay())
```

Get Middle Delay

Description This method retrieves the middle delay value used by the adjust fiber system.

URL http://{IP}:{Port}/AdjustFiber/Get_MiddleDelay

Parameters None

Response

“status”	True or False
“MiddleDelay”	The middle delay value applied in the system (e.g., 100).
“Unit”	The unit of the middle delay value, typically ms (milliseconds).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_MiddleDelay'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_MiddleDelay())
```

Get K Fiber

Description This method retrieves the value of KFiber.

URL http://{IP}:{Port}/AdjustFiber/Get_KFiber

Parameters None

Response

“status”	True or False
“KFiber”	Fiber displacement per unit voltage (e.g., 100).
“Unit”	The unit of the value, typically Å/V.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_KFiber'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_KFiber())
```

Description This method retrieves the step size for slope adjustments.

URL http://{IP}:{Port}/AdjustFiber/Get_SlopeStepSize

Parameters None

Response

“status”	True or False
“SlopeStepSize”	The step size used for slope adjustments (e.g., 6).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_SlopeStepSize'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_SlopeStepSize())
```

Get Sin Period

Description This method retrieves the sine period value used.

URL http://{IP}:{Port}/AdjustFiber/Get_SinPeriod

Parameters None

Response

“status”	True or False
“SinPeriod”	The sine period value (e.g., 655).
“Unit”	The unit of the sine period, typically nm.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_SinPeriod'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_SinPeriod())
```

Description This method retrieves the list of available slope modes.

URL http://{IP}:{Port}/AdjustFiber/Get_SlopeModeList

Parameters None

Response

“status”	True or False
“SlopeModes”	A string containing the available slope modes (e.g., "MaxSlope;MinSlope;AbsoluteMaxSlope")
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_SlopeModeList'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_SlopeModeList())
```

Description This method retrieves the current slope mode selected.

URL http://{IP}:{Port}/AdjustFiber/Get_SlopeMode

Parameters None

Response

“status”	True or False
“SlopeMode”	The currently selected slope mode (e.g., "MaxSlope").
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_SlopeMode'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_SlopeMode())
```

Description This method retrieves the current gamma value.

URL http://{IP}:{Port}/AdjustFiber/Get_Gamma

Parameters None

Response

“status”	True or False
“Gamma”	The current gamma value (e.g., 0.85).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_Gamma'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_Gamma())
```

Description This method retrieves the maximum PZT voltage limit.

URL http://{IP}:{Port}/AdjustFiber/Get_MaxPztVoltage

Parameters None

Response

“status”	True or False
“MaxPztVoltage”	The maximum allowable PZT voltage (e.g., 100).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_MaxPztVoltage'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_MaxPztVoltage())
```

Description This method checks whether the AutoKFiber feature is enabled.

URL http://{IP}:{Port}/AdjustFiber/Get_IsAutoKFiberEnable

Parameters None

Response

“status”	True or False
“IsAutoKFiberEnable”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_IsAutoKFiberEnable'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_IsAutoKFiberEnable())
```

Description This method retrieves various measurement results and parameters from the adjust fiber system.

URL http://{IP}:{Port}/AdjustFiber/Get_Results

Parameters None

Response

“status”	True or False
“MaxSlope”	Maximum slope value (e.g., 0).
“MaxSlopeUnit”	Unit of the maximum slope value (e.g., mV/Å).
“MinSlope”	Minimum slope value (e.g., 0).
“MinSlopeUnit”	Unit of the minimum slope value (e.g., µW).
“QuadraturePointPower”	Power at the quadrature point (e.g., 0).
“QuadraturePointPowerUnit”	Unit of the quadrature point power (e.g., µW).
“FiberVoltage”	Fiber voltage (e.g., 0).
“FiberVoltageUnit”	Unit of the fiber voltage (e.g., V).
“FiberPosition”	Fiber position (e.g., 0).
“FiberPositionUnit”	Unit of the fiber position (e.g., nm).
“LaserPower”	Laser power (e.g., 0).
“LaserPowerUnit”	Unit of the laser power (e.g., µW).
“Finesse”	Finesse value (e.g., 0).
“Visibility”	Visibility value (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_Results'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_Results())
```

Description This method retrieves the maximum slope value.

URL http://{IP}:{Port}/AdjustFiber/Get_ResultMaxSlope

Parameters None

Response

“status”	True or False
“MaxSlope”	The maximum slope value measured (e.g., 0).
“Unit”	The unit of the maximum slope value (e.g., mV/Å).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_ResultMaxSlope'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_ResultMaxSlope())
```

Description This method retrieves the maximum slope value.

URL http://{IP}:{Port}/AdjustFiber/Get_ResultMinSlope

Parameters None

Response

“status”	True or False
“MinSlope”	The minimum slope value measured (e.g., 0).
“Unit”	The unit of the minimum slope value (e.g., mV/Å).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_ResultMinSlope'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_ResultMinSlope())
```

Description This method retrieves the quadrature point power value.

URL http://{IP}:{Port}/AdjustFiber/Get_ResultQuadraturePointPower

Parameters None

Response

“status”	True or False
“QuadraturePointPower”	The power at the quadrature point (e.g., 0).
“Unit”	The unit of the power value (e.g., µW).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_ResultQuadraturePointPower'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_ResultQuadraturePointPower())
```

Description This method retrieves the fiber voltage value.

URL http://{IP}:{Port}/AdjustFiber/Get_ResultFiberVoltage

Parameters None

Response

“status”	True or False
“FiberVoltage”	The voltage applied to the fiber (e.g., 0).
“Unit”	The unit of the voltage value, typically V (volts).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_ResultFiberVoltage'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_ResultFiberVoltage())
```

Get Result Laser Power

Description This method retrieves the laser power value.

URL http://{IP}:{Port}/AdjustFiber/Get_ResultLaserPower

Parameters None

Response

“status”	True or False
“LaserPower”	The current laser power (e.g., 0).
“Unit”	The unit of the laser power value, typically µW.
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_ResultLaserPower'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_ResultLaserPower())
```

Description This method retrieves the finesse value.

URL http://{IP}:{Port}/AdjustFiber/Get_ResultFinesse

Parameters None

Response

“status”	True or False
“Finesse”	The finesse value (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_ResultFinesse'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_ResultFinesse())
```

Description This method retrieves the visibility value.

URL http://{IP}:{Port}/AdjustFiber/Get_ResultVisibility

Parameters None

Response

“status”	True or False
“Visibility”	The visibility value (e.g., 0).
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Get_ResultVisibility'

response = requests.get(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Get_ResultVisibility())
```

Description This method initializes the adjust fiber system.

URL http://{IP}:{Port}/AdjustFiber/Set_Initialize

Parameters None

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_Initialize'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Set_Initialize())

    print(AdjustFiber.Get_IsInit()) #control
```

Description This method sets the number of samples for measurements.

URL http://{IP}:{Port}/AdjustFiber/Set_NumSamples

Parameters

numSample(int)	The number of samples to be set (e.g., 256).

Response

“status”	True or False
“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_NumSamples'

payload = {"reg0": 256, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_NumSamples(256)

    print(AdjustFiber.Get_NumSamples()) #control
```

Description This method sets the delay time.

URL http://{IP}:{Port}/AdjustFiber/Set_Delay

Parameters delay(int) The delay time to be set, in microseconds (µs) (e.g., 5).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_Delay'

payload = {"reg0": 5, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_Delay(5)

    print(AdjustFiber.Get_Delay()) #control
```

Set Middle Delay

Description This method sets the middle delay time.

URL http://{IP}:{Port}/AdjustFiber/Set_MiddleDelay

Parameters	middleDelay(int)	The middle delay time to be set, in milliseconds (ms) (e.g., 75).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_MiddleDelay'

payload = {"reg0": 75, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_MiddleDelay(75)

    print(AdjustFiber.Get_MiddleDelay()) #control
```

Set K Fiber

Description This method sets the KFiber value.

URL http://{IP}:{Port}/AdjustFiber/Set_KFiber

Parameters kFiber(float) The KFiber value to be set, in Å/V (e.g., 100.0).

Response “status” True or False
“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_KFiber'

payload = {"reg0": 100, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_KFiber(100)

    print(AdjustFiber.Get_KFiber()) #control
```

Set Slope Step Size

Description	This method sets the slope step size.	
URL	http://{IP}:{Port}/AdjustFiber/Set_SlopeStepSize	
Parameters	slopeStepSize(int)	The step size to be set for slope adjustments (e.g., 6).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_SlopeStepSize'

payload = {"reg0": 6, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_SlopeStepSize(6)

    print(AdjustFiber.Get_SlopeStepSize()) #control
```

Description This method sets the slope mode.

URL http://{IP}:{Port}/AdjustFiber/Set_SlopeMode

Parameters	slopeMode(str)	The slope mode to be set (e.g., "MaxSlope").
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_SlopeMode'

payload = {"reg0": "MinSlope", "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_SlopeMode("MinSlope")

    print(AdjustFiber.Get_SlopeMode()) #control
```

Description This method sets the gamma value.

URL http://{IP}:{Port}/AdjustFiber/Set_Gamma

Parameters	gamma(float)	The gamma value to be set (e.g., 0.85).
Response	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_Gamma'

payload = {"reg0": 0.85, "reg1": "", "reg2": "", "reg3": ""}

response = requests.post(uri, json=payload, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_Gamma(0.85)

    print(AdjustFiber.Get_Gamma())
```

Set Auto K Fiber Enable

Description This method enables the automatic KFiber adjustment feature.

URL http://{IP}:{Port}/AdjustFiber/Set_AutoKFiberEnable

Parameters None

Response “status” True or False

“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_AutoKFiberEnable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_AutoKFiberEnable()

    print(AdjustFiber.Get_IsAutoKFiberEnable() #control
```

Description This method disables the automatic KFiber adjustment feature.

URL http://{IP}:{Port}/AdjustFiber/Set_AutoKFiberDisable

Parameters None

Response

	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Set_AutoKFiberDisable'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    AdjustFiber.Set_AutoKFiberDisable()

    print(AdjustFiber.Get_IsAutoKFiberEnable()) #control
```

Description This method initiates the process to find the quadrature point.

URL http://{IP}:{Port}/AdjustFiber/FindQuadrature

Parameters None

Response

	“status”	True or False
	“msg”	"OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/FindQuadrature'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.FindQuadrature())
```

Stop

Description This method stops any ongoing process or operation in the adjust fiber system.

URL http://{IP}:{Port}/AdjustFiber/Stop

Parameters None

Response “status” True or False

“msg” "OK!"

Request Example

```
import requests

headers = {'accept': 'application/json',}

uri = 'http://{IP}:{Port}/AdjustFiber/Stop'

response = requests.post(uri, headers=headers)
```

hpSPMPlusStudio Library Example

Python:

```
from hpSPMPlusStudio import NMIEndpoint,NMIDevice

if __name__ == "__main__":

    Endpoint = NMIEndpoint(IP,port)

    Device = NMIDevice(Endpoint)

    AdjustFiber = Device.ADJUSTFIBER()

    print(AdjustFiber.Stop())
```