NSP32 Python API for desktop Documentation

nanoLambda, Inc.

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NANOLAMBDANSP32 MODULE

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1.1.1 CmdCodeEnum

class `NanoLambdaNSP32.`**`CmdCodeEnum`**

Bases: `enum.IntEnum`

command code enumeration

Attributes Summary

`AcqSpectrum`	spectrum acquisition
`AcqXYZ`	XYZ acquisition
`GetSensorId`	get sensor id
`GetSpectrum`	get spectrum data
`GetWavelength`	get wavelength
`GetXYZ`	get XYZ data
`Hello`	hello
`Prefix0`	prefix 0
`Prefix1`	prefix 1
`Standby`	standby
`Unknown`	unknown

Attributes Documentation

`AcqSpectrum = 38`

spectrum acquisition

`AcqXYZ = 42`

XYZ acquisition

`GetSensorId = 6`

get sensor id

GetSpectrum = 40
get spectrum data

GetWavelength = 36
get wavelength

GetXYZ = 44
get XYZ data

Hello = 1
hello

Prefix0 = 3
prefix 0

Prefix1 = 187
prefix 1

Standby = 4
standby

Unknown = 0
unknown

1.1.2 NSP32

class `NanoLambdaNSP32.`**NSP32**(*sendDataDelegate*, *returnPacketReceivedDelegate*)

Bases: `object`

NSP32 main class

Methods Summary

AcqSpectrum(userCode, integrationTime, ...)	start spectrum acquisition
AcqXYZ(userCode, integrationTime, ...)	start XYZ acquisition
GetSensorId(userCode)	get sensor id
GetWavelength(userCode)	get wavelength
Hello(userCode)	say hello to NSP32
OnReturnByteReceived(rcv)	byte received handler (call this function when receiving a single byte from data channel)
OnReturnBytesReceived(data)	bytes received handler (call this function when receiving multiple bytes from data channel)
Standby(userCode)	standby NSP32

Methods Documentation

AcqSpectrum(*userCode*, *integrationTime*, *frameAvgNum*, *enableAE*)

start spectrum acquisition

We will let NSP32 actively send out the "GetSpectrum" return packet once the acquisition is done, so there is no GetSpectrum() function in this API.

Args: userCode(int): user code

integrationTime(int): integration time

frameAvgNum(int): frame average num

enableAE(bool): True to enable AE; False to disable AE

AcqXYZ(*userCode*, *integrationTime*, *frameAvgNum*, *enableAE*)

start XYZ acquisition

We will let NSP32 actively send out the "GetXYZ" return packet once the acquisition is done, so there is no GetXYZ() function in this API.

Args: userCode(int): user code

integrationTime(int): integration time

frameAvgNum(int): frame average num

enableAE(bool): True to enable AE; False to disable AE

GetSensorId(*userCode*)

get sensor id

Args: userCode(int): user code

GetWavelength(*userCode*)

get wavelength

Args: userCode(int): user code

Hello(*userCode*)

say hello to NSP32

Args: userCode(int): user code

OnReturnByteReceived(*rcv*)

byte received handler (call this function when receiving a single byte from data channel)

Args: rcv(int): single byte received

OnReturnBytesReceived(*data*)

bytes received handler (call this function when receiving multiple bytes from data channel)

Args: data(list): bytes received

Standby(*userCode*)

standby NSP32

Args: userCode(int): user code

1.1.3 ReturnPacket

class NanoLambdaNSP32.**ReturnPacket**(*cmdCode*, *userCode*, *isPacketValid*, *packetBytes*)

Bases: `object`

return packet

Attributes Summary

CmdCode	CmdCodeEnum: command function code
IsPacketValid	bool: check if the packet is valid (True for valid; False for invalid)
PacketBytes	bytearray: packet data bytes
UserCode	int: command user code

Methods Summary

ExtractSensorIdStr()	extract sensor id string from the return packet
ExtractSpectrumInfo()	extract spectrum info from the return packet
ExtractWavelengthInfo()	extract wavelength info from the return packet
ExtractXYZInfo()	extract XYZ info from the return packet

Attributes Documentation

CmdCode
CmdCodeEnum: command function code

IsPacketValid
bool: check if the packet is valid (True for valid; False for invalid)

PacketBytes
bytearray: packet data bytes

UserCode
int: command user code

Methods Documentation

ExtractSensorIdStr()
extract sensor id string from the return packet

Returns: str: sensor id string (return None if the packet type mismatches)

ExtractSpectrumInfo()
extract spectrum info from the return packet

Returns: SpectrumInfo: spectrum info (return None if the packet type mismatches)

ExtractWavelengthInfo()
extract wavelength info from the return packet

Returns: WavelengthInfo: wavelength info (return None if the packet type mismatches)

ExtractXYZInfo()
extract XYZ info from the return packet

Returns: XYZInfo: XYZ info (return None if the packet type mismatches)

1.1.4 SpectrumInfo

class NanoLambdaNSP32.**SpectrumInfo**(*packetBytes*)
Bases: object

spectrum info

Attributes Summary

IntegrationTime	int: integration time
IsSaturated	bool: saturation flag (True for saturated; False for not saturated)
NumOfPoints	int: num of points
Spectrum	tuple: spectrum data
X	float: X
Y	float: Y
Z	float: Z

Attributes Documentation

IntegrationTime
int: integration time

IsSaturated
bool: saturation flag (True for saturated; False for not saturated)

NumOfPoints
int: num of points

Spectrum
tuple: spectrum data

X
float: X

Y
float: Y

Z
float: Z

1.1.5 WavelengthInfo

class `NanoLambdaNSP32.`**`WavelengthInfo`**(*packetBytes*)

Bases: `object`

wavelength info

Attributes Summary

NumOfPoints	int: num of points
Wavelength	tuple: wavelength data

Attributes Documentation

NumOfPoints
int: num of points

Wavelength
tuple: wavelength data

1.1.6 XYZInfo

class `NanoLambdaNSP32.`**`XYZInfo`**(*packetBytes*)

Bases: `object`

XYZ info

Attributes Summary

IntegrationTime	int: integration time
IsSaturated	bool: saturation flag (True for saturated; False for not saturated)
X	float: X
Y	float: Y

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Z	float: Z

Attributes Documentation

IntegrationTime
int: integration time

IsSaturated
bool: saturation flag (True for saturated; False for not saturated)

X
float: X

Y
float: Y

Z
float: Z

CHAPTER TWO

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