

CodyNick Python Quick Reference Handbook

Start Code

```
import CodyNick

cn = CodyNick.CN()
```

`cn` is the connected CodyNick device object. Pass it as the first argument to CodyNick hardware functions.

RGB LED Matrix

Set One LED By Number

```
CodyNick.RGB_Matrix.set(cn, led, color)
```

| Parameter | Description |
|--------------------|-----------------------------------------------------------------------|
| <code>cn</code> | Connected CodyNick device |
| <code>led</code> | LED number from <code>0</code> to <code>15</code> |
| <code>color</code> | Color code <code>0..7</code> , RGB hex string, or RGB percentage list |

Accepted `color` formats:

```
0
"#00FFFF"
[0, 100, 100]
```

Examples:

```
CodyNick.RGB_Matrix.set(cn, 15, 0)
CodyNick.RGB_Matrix.set(cn, 15, "#00FFFF")
CodyNick.RGB_Matrix.set(cn, 15, [0, 100, 100])
```

Set One LED By Coordinate

```
CodyNick.RGB_Matrix.set_xy(cn, x, y, color)
```

| Parameter | Description |
|--------------------|-----------------------------------------------------------------------|
| <code>cn</code> | Connected CodyNick device |
| <code>x</code> | Horizontal coordinate from <code>0</code> to <code>3</code> |
| <code>y</code> | Vertical coordinate from <code>0</code> to <code>3</code> |
| <code>color</code> | Color code <code>0..7</code> , RGB hex string, or RGB percentage list |

Coordinate system:

```
(0,3) (1,3) (2,3) (3,3)
(0,2) (1,2) (2,2) (3,2)
(0,1) (1,1) (2,1) (3,1)
(0,0) (1,0) (2,0) (3,0)
```

Example:

```
CodyNick.RGB_Matrix.set_xy(cn, 0, 0, "#FF0000")
```

Clear All RGB LEDs

```
CodyNick.RGB_Matrix.clear(cn)
```

Turns off all RGB LEDs.

Built-In Color Codes

| Code | Name | Hex |
|------|---------|----------------------|
| 0 | Red | <code>#FF0000</code> |
| 1 | Cyan | <code>#00FFFF</code> |
| 2 | Blue | <code>#0000FF</code> |
| 3 | Yellow | <code>#FFFF00</code> |
| 4 | Magenta | <code>#FF00FF</code> |
| 5 | Green | <code>#00FF00</code> |
| 6 | Orange | <code>#FF8000</code> |
| 7 | White | <code>#FFFFFF</code> |

Check One Direction

```
CodyNick.Joystick.position(cn, direction)
```

| Parameter | Description |
|------------------------|-----------------------------------------------------------------------------------------|
| <code>cn</code> | Connected CodyNick device |
| <code>direction</code> | <code>"up"</code> , <code>"down"</code> , <code>"left"</code> , or <code>"right"</code> |

Returns `True` or `False`.

Example:

```
if CodyNick.Joystick.position(cn, "up"):  
    print("up")
```

Check Button Click

```
CodyNick.Joystick.click(cn)
```

Returns `True` when the joystick button is pressed.

Read All Current States

```
CodyNick.Joystick.states(cn)
```

Returns a list such as:

```
[]  
["UP"]  
["LEFT"]  
["CLICK"]  
["UP", "CLICK"]
```

Example:

```
states = CodyNick.Joystick.states(cn)
```

Play A Note And Continue

```
CodyNick.CJP_Sound_Maker.play(cn, note, duration_ms)
```

| Parameter | Description |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <code>cn</code> | Connected CodyNick device |
| <code>note</code> | Musical note from <code>B0</code> to <code>D#8</code> , such as <code>"C4"</code> , <code>"F#2"</code> , or <code>"Gb2"</code> |
| <code>duration_ms</code> | Duration in milliseconds |

Example:

```
CodyNick.CJP_Sound_Maker.play(cn, "F#2", 300)
```

Play A Note And Wait Until Done

```
CodyNick.CJP_Sound_Maker.play_until_done(cn, note, duration_ms)
```

Same parameters as `play()`, but Python waits until the note is finished.

Example:

```
CodyNick.CJP_Sound_Maker.play_until_done(cn, "C4", 500)
```

Seven Segment Display

Display A Number

```
CodyNick.Seven_Segment.display(cn, value)
```

| Parameter | Description |
|--------------------|----------------------------------|
| <code>cn</code> | Connected CodyNick device |
| <code>value</code> | Number or numeric string to show |

Examples:

```
CodyNick.Seven_Segment.display(cn, 1234)
CodyNick.Seven_Segment.display(cn, -123)
CodyNick.Seven_Segment.display(cn, 1.234)
```

Motion Detection

Detect Motion

```
CodyNick.Motion_Detection.detect(cn)
```

| Parameter | Description |
|-----------------|---------------------------|
| <code>cn</code> | Connected CodyNick device |

Returns:

```
True  
False
```

Example:

```
if CodyNick.Motion_Detection.detect(cn):  
    print("motion detected")
```

Connection Control

Close The Connection

```
cn.close()
```

Closes the serial connection to the CodyNick device.

Quick summary:

Use ``RGB_Matrix`` for RGB LEDs, ``Joystick`` for joystick input, ``CJP_Sound_Maker`` for notes, ``Seven_Segment`` for numeric output, and ``Motion_Detection`` for PIR motion sensing.

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