

# TEENSY CONTROL BOX

For controlling addressable LEDs in a VPin



[GermanGamingSupplies.com](http://GermanGamingSupplies.com)

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# Teensy Control Box

By GermanGamingSupplies.com

## Thank you for purchasing our Controller

With this device it is very easy and convenient to install and drive your addressable LED setup, wether it be stripes, a Matrix, Rings or your own custom setup. Our preparations of the Box and it's connectors made the installation very quick and simple.

## 1 Overview and connectors

Each Box has the following in- and outputs:

- 4 4 inputs for power distribution (pic. 1/ A,C)
- 4 outputs for data and initial power distribution for each up to 1.100 addressable WS2812b LEDs (pic. 1/ D)
- Micro-USB connector for connection to your PC (pic. 1/ B)

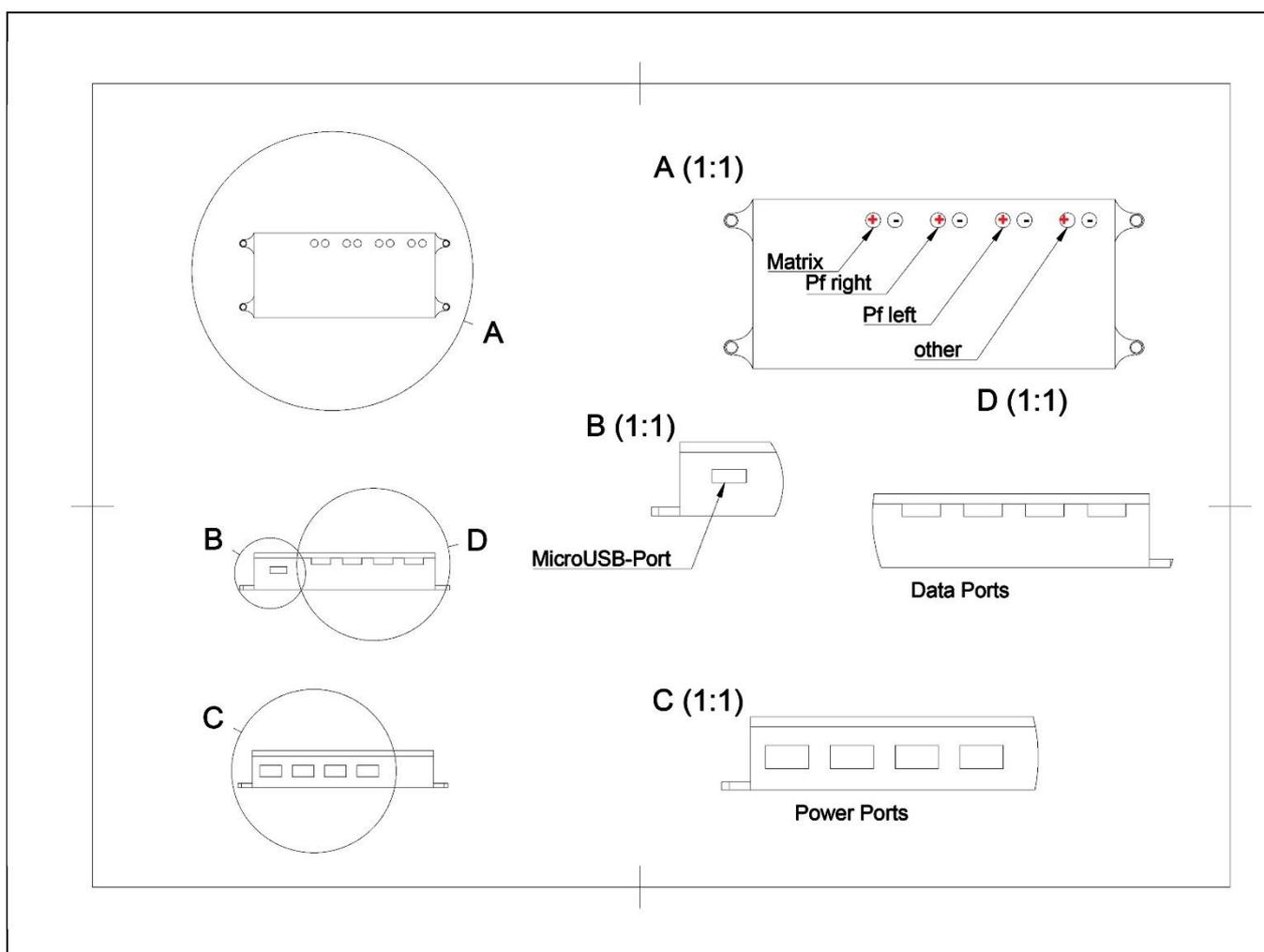


Abb. 1: Schematische Übersicht und Anschlüsse

## 2 Installation

### 2.1 Montage

Install the box in the top right corner of your cabinet, if installed, at the back of your matrix. 4 little screws will do the job fine.

### 2.2 1. Connect the USB cable

You can connect the box to your pc via the provided Micro-usb cable, no matter if the PC is powered on or not. Any USB 2.0 or 3.0 is ok.

### 2.3 2. Connecting additional power supply

You're only allowed to connect the additional power connectors when both PC and power supply are turned OFF!!!



pic. 2: Teensy Box w/o connectors

**You need to connect at least the Matrix power input ports in order to make the system power up.**

For Version 1.0, each output port has a corresponding input side. If you want to distribute power through the box, you need to connect each input port according to the used output port.

For devices with huge amounts of LEDs (matrixes or very long stripes) we suggest to distribute additional power every 120-140 LEDs. Normally, the sold stripes have additional power input cables at the beginning. Use them for more even power distribution.




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**IMPORTANT!**

*MAke sure to connect input power cables in correct orientation!DO NOT MIX UP POLARITY, it could cause the system to fail or in worst case harm your PC as well!*

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For driving the addressable stripes an external üpower supply is mandatory.

Needed amperage is calculated through amount of LEDs and current draw of max. 60mA per LED.Make sure your power supply is capable of the needed current that can be drawn from the LEDs. It should be able to distribute around 10-20% more Ampere than actually needed. Examples:

144 LEDs = min. 10A

288 LEDs = min. 20A

500 LEDs = min. 35A

Etc..




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**DANGER**
**Dangerous, potentially deadly voltages!**

Connecting an external power supply should only be done by electricians or other trained people as errors can lead to harmful or even deadly accidents!

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Matching power supplies are available at our webshop at <https://GermanGamingSupplies.com>

### 3 Setup

For windows 10 (7 untested but should be same) no manual driver installation is needed. Upon first connection to your PC the driver will install automatically.

To make the system work with your (working) DOF installation you need to figure out the correct COM port to make DOF talk to your Teensy Control Box.

#### 3.1 Finding correct COM-Port

**Open your device manager of windows:**

Press  + R to open the connad prompt window.  
type devmgmt.msc and press Enter.

or

Press  + X, the windows start options tab will open.

Click on „device manager“, and open by clicking via mouse on it.

or

right-click on your windows start logo and select „device manager“ via mouse click

### 3.2 Note down COM-Port

In your opened device manager you'll find a lot of entries for your several components of your system. One of the early (top most) entries is the (COM & LPT).

Open the tab and a „serial device“ will show up with a „(COMxx)“ behind which determines the actual COM port of your Teensy Control Box.

**Note down the number behind the COM.**

### 3.3 Cabinet.xml creation

#### 3.3.1 Do you have a Cabinet.xml?

The Standard installation path for DOF is: C:\DirectOutput.

If newly installed with a recent controller (Pinscape and similar) you shouldn't have a cabinet.xml. If your folder already has one please proceed to the next number.

Please download from [here](#)\* if you don't have it and copy it into your DirectOutput folder.

\* [https://germangamingsupplies.com/mediafiles/Sonstiges/Teensy\\_Control\\_Box\\_Configfiles.zip](https://germangamingsupplies.com/mediafiles/Sonstiges/Teensy_Control_Box_Configfiles.zip)

### 3.4 Edit Cabinet.xml

Open your cabinet.xml with an editor like Notepad++ and search for the following entry:

```
<TeensyStripController>
...
...
</TeensyStripController>
```

#### 3.4.1 Entry found: yes

If you used our prepared file or have your own tests done before search for the following entry:

```
<ComPortName>COM22</ComPortName>
```

Change the number behind COM according to your noted COM-port number.

Save your changes and close the file.

#### 3.4.2 Entry found: no

If your cabinet.xml doesn't have the entry inside please copy the following code.

Make sure you follow the rules:

##### 1. <OutputControllers> section:

```
<TeensyStripController>
<Name>TeensyStripController</Name>
<NumberOfLedsStrip1>384</NumberOfLedsStrip1>
<NumberOfLedsStrip2>144</NumberOfLedsStrip2>
<NumberOfLedsStrip3>144</NumberOfLedsStrip3>
<NumberOfLedsStrip4>0</NumberOfLedsStrip4>
<NumberOfLedsStrip5>0</NumberOfLedsStrip5>
```

```

<NumberOfLedsStrip6>0</NumberOfLedsStrip6>
<NumberOfLedsStrip7>0</NumberOfLedsStrip7>
<NumberOfLedsStrip8>0</NumberOfLedsStrip8>
<ComPortName>COM22</ComPortName>
<ComPortTimeOutMs>200</ComPortTimeOutMs>
</TeensyStripController>

```

## 2. <Toys> section:

```

<LedStrip>
<Name>PF Right</Name>
<Width>1</Width>
<Height>144</Height>
<LedStripArrangement>TopDownLeftRight</LedStripArrangement>
<ColorOrder>GRB</ColorOrder>
<FirstLedNumber>385</FirstLedNumber>
<FadingCurveName>Linear0To16</FadingCurveName>
<OutputControllerName>TeensyStripController</OutputControllerName>
</LedStrip>

```

```

<LedStrip>
<Name>PF Left</Name>
<Width>1</Width>
<Height>144</Height>
<LedStripArrangement>TopDownLeftRight</LedStripArrangement>
<ColorOrder>GRB</ColorOrder>
<FirstLedNumber>529</FirstLedNumber>
<FadingCurveName>Linear0To16</FadingCurveName>
<OutputControllerName>TeensyStripController</OutputControllerName>
</LedStrip>

```

```

<LedStrip>
<Name>PF Back</Name>
<Width>48</Width>
<Height>8</Height>
<LedStripArrangement>BottomUpAlternateRightLeft</LedStripArrangement>
<ColorOrder>GRB</ColorOrder>
<FirstLedNumber>1</FirstLedNumber>
<FadingCurveName>Linear0To16</FadingCurveName>
<OutputControllerName>TeensyStripController</OutputControllerName>
</LedStrip>

```

```

<LedWizEquivalent>
<Name>LedWizEquivalent 30</Name>

```

## 3. <Outputs> section:

```
<LedWizEquivalentOutput>  
<OutputName>PF Back</OutputName>  
<LedWizEquivalentOutputNumber>1</LedWizEquivalentOutputNumber>  
</LedWizEquivalentOutput>
```

```
<LedWizEquivalentOutput>  
<OutputName>PF Right</OutputName>  
<LedWizEquivalentOutputNumber>4</LedWizEquivalentOutputNumber>  
</LedWizEquivalentOutput>
```

```
<LedWizEquivalentOutput>  
<OutputName>PF Left</OutputName>  
<LedWizEquivalentOutputNumber>7</LedWizEquivalentOutputNumber>  
</LedWizEquivalentOutput>
```

**Notice**

Please do **not** change the entries, these are preconfigured for our products or your ordered configuration!

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### 3.5 Download matching directoutputconfig30.ini

We already prepared a matching file for you. You can find it [here](#)\* and needs to be copied also into the \Config folder of your DirectOutput installation.

\* [https://germangamingsupplies.com/mediafiles/Sonstiges/Teensy\\_Control\\_Box\\_Configfiles.zip](https://germangamingsupplies.com/mediafiles/Sonstiges/Teensy_Control_Box_Configfiles.zip)

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**Notice:**

Make sure that files are unblocked after downloading!

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## 4 –Configuration

Our Teensy Box comes preconfigured with the following standard settings:

### 4.1 Matrix

8x48 Pixels

Alternating from bottom to top and right to left, when viewed from front of cabinet

- ➔ BottomUpAlternateRightLeft
- ➔ LED color order GRB

### 4.2 Playfield right

144 LEDs

From cabinet back to front

- ➔ TopDownLeftRight
- ➔ LED color order GRB

### 4.3 Playfield left

144 LEDs

From cabinet back to front

- ➔ TopDownLeftRight
- ➔ LED color order GRB



#### **Notice**

*You can change the configuration according to your own setup or ask us to do it for you before or after orderin.*

*We would then need an as detailed as possible description of your stripes, directions etc*

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## 5 Start Game

Your configuration should now be done and with the next start of Visual Pinball X fully activated.

**Have fun with our product and Happy Gaming!**

Ver. 1.1 April 2019