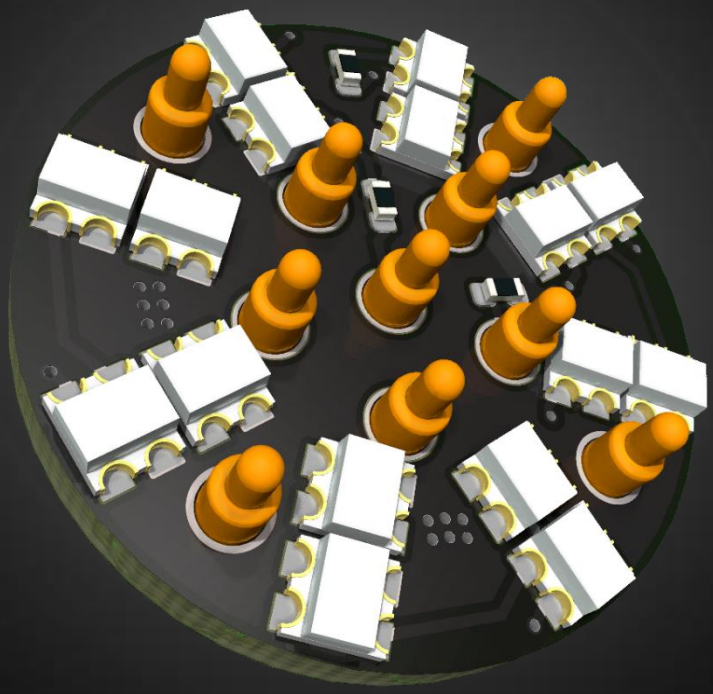


NeoPixel™ Blade Connector

User's Guide

Board revision: 1.4

Scavenger's Den

Safety notice

The board contains parts which are sensitive to electrostatic discharge. Please make sure to always ground yourself properly before working on sensitive electronics and always use a ESD save soldering iron. Furthermore it is strongly recommended to always use PCB protected Lithium-Ion batteries. The creator of this board cannot be held liable for any damage arising from a faulty install or misuse of the board.
Always be very cautious when using High-Power LEDs since they are very bright can damage the eye. If you are photosensitive please note that this device creates heavily flickering and flashing lights.

Legal disclaimer

Scavenger's Den is not affiliated in any way with The Walt Disney Company™ or Lucasfilm Ltd.™. All brands and trademarks if mentioned are the exclusive property of their respective owners. Furthermore, we are not affiliated in any way with Adafruit™. The trademark Neopixel™ is their exclusive property.

Table of contents

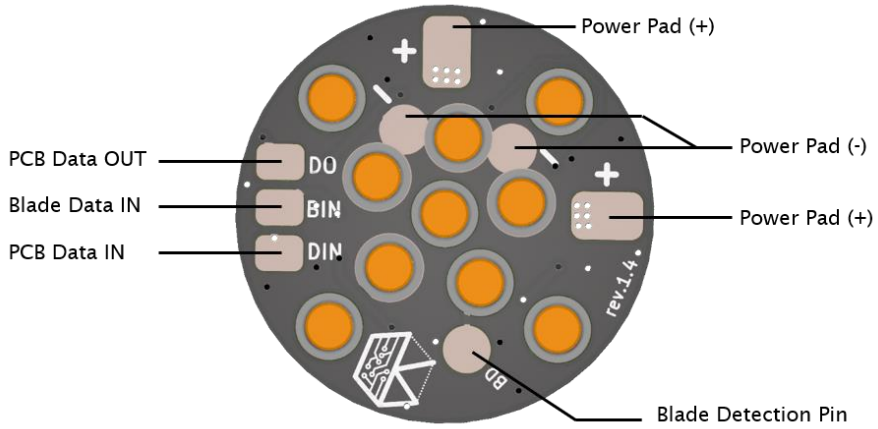
NeoPixel™ Blade Connector

1. Technical specifications

- Small size: Ø17.5 mm (0.689“), thickness 2.5 mm (0.1“)
- 16 super small on-board WS2812B-2020 LEDs for bright blade plug illumination
- Separate data input (and output) pads for blade and connector PCB
- Reverse voltage protected components
- Extra pin for blade detection with on-board 10 kΩ pull up resistor
- Big and easy accessible pads for convenient soldering
- Input voltage 3.3-5.5 V (optimal for single 3.7 V Li-ion battery)
- Compatible with most blade Side PCBs (Shtok, VV, TCSS, LGT, CCS)
- Capable of delivering continuous currents of over 10 A without major heat losses
- Gold plated Pogo Pins for optimal contact

2. Pinout and wiring Guide

The Connections on the board are as follows:

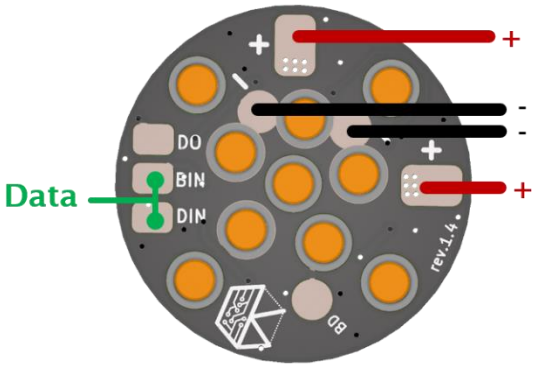


Please use at least 0.25 mm² (24 AWG) wires for the load bearing lines to prevent heat losses and damage to the components. If you have to use thinner wires, make sure to use two of them in parallel and solder them to both power pads.

Setup 1:

Blade and PCB in parallel

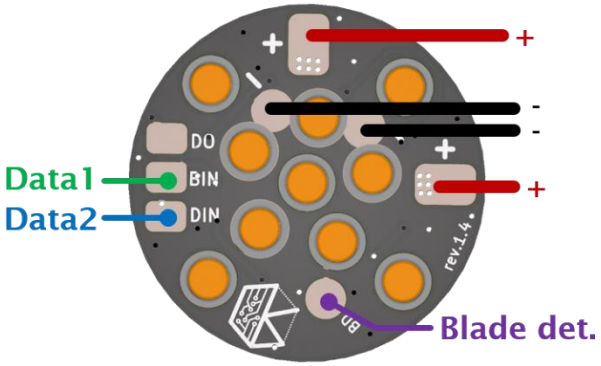
In this wiring the LEDs of the PCB mirrors the first 16 LEDs of the Blade. It is not possible to control the connector LEDs independently this way. For this setup just solder the data wire from your soundboard to both the BIN and DIN pads.



Setup 2:

Blade and PCB fully independent

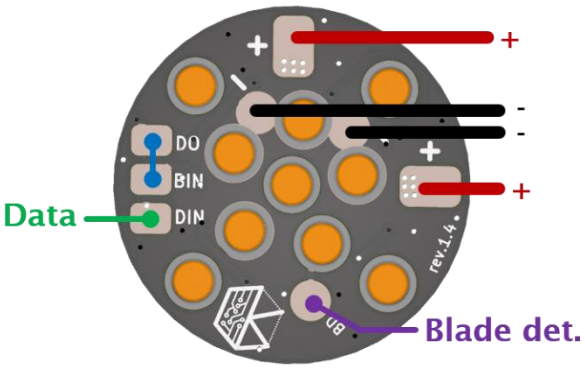
This wiring allows fully independent control of the Blade and PCB LEDs. For this setup a soundboard with two independent Neopixel data outputs is needed (e.g. Proffie v2.2/v3). In this setup the Blade detection pin can be used to turn off the PCB LEDs when a Blade is present for lower power consumption and reduced heat generation.



Setup 3:

Blade LEDs after PCB LEDs

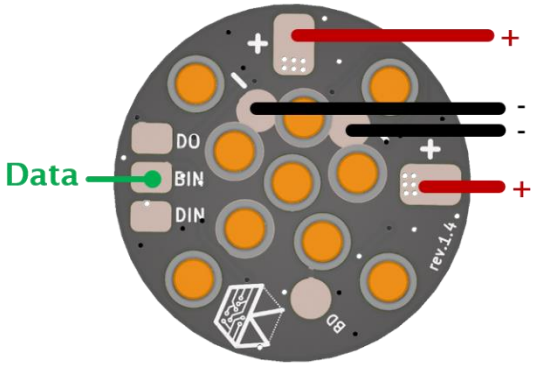
If you wire the PCB in this way the LEDs of the blade will run **AFTER** the PCB LEDs. So you **MUST** add 16 LEDs to the blade LED amount your sound board configuration for this setup. This way the PCB and the Blade LEDs can be controlled independently with only one data wire. Thus the BD pin still can be used for extra PCB LED control in presence of a blade. Just solder the data wire to the DIN pad and add a small solder bridge between the DO and BIN pads.



Setup 4:

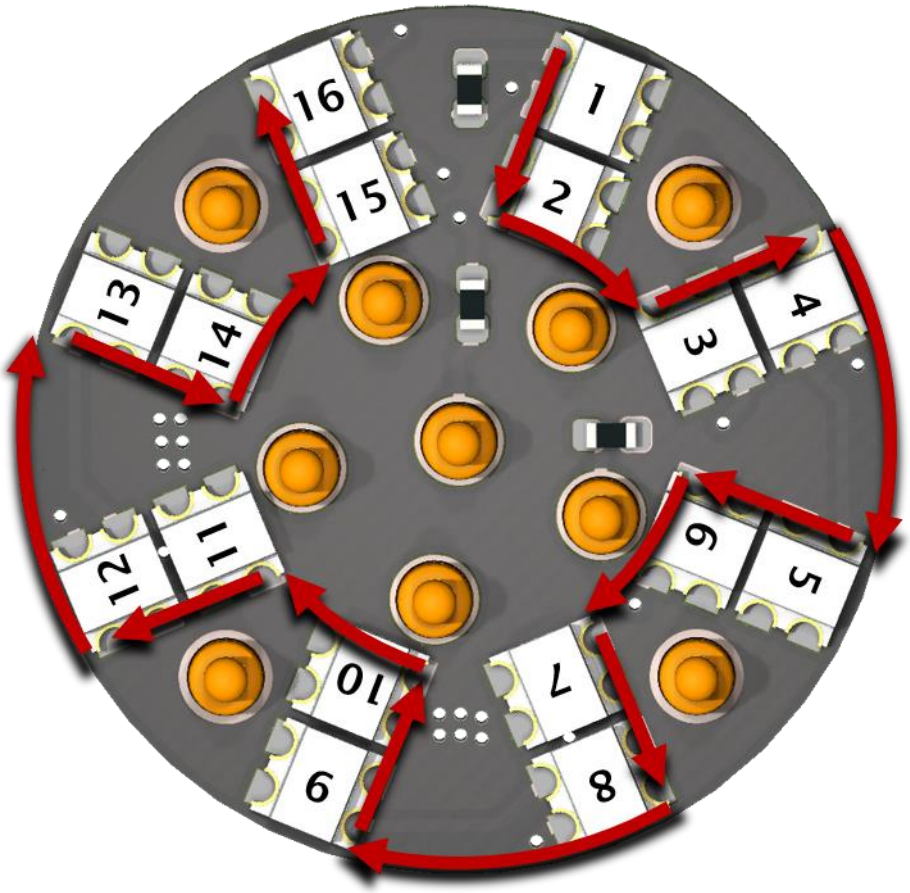
Only blade LEDs

If you, for some reason do not want to use the PCB LEDs, just solder the data wire from your soundboard to the BIN pad.



3. Internal LED data path

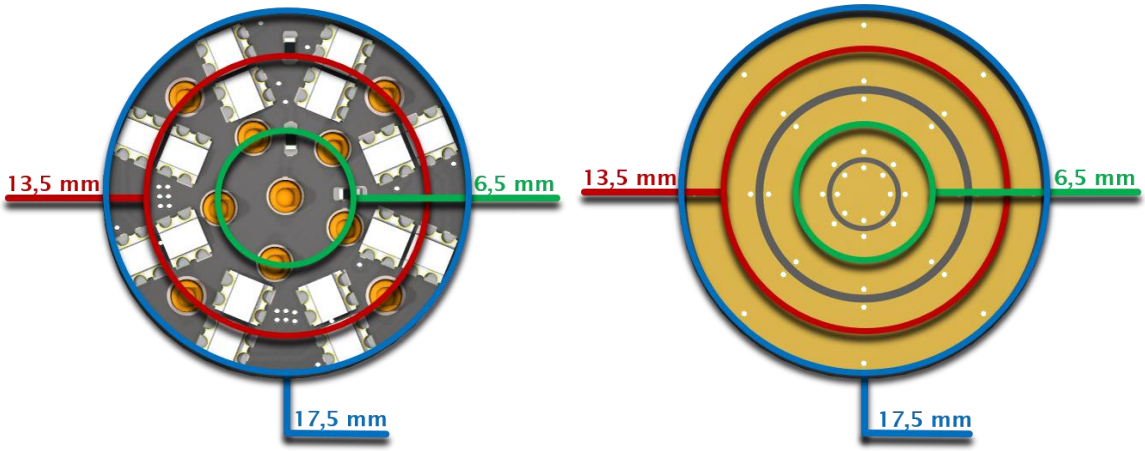
The internal Datapath between the LEDs results in the following order of LEDs. Refer to this figure if you want to program individual effects for your Neopixel blade connector.



4. Compatibility information

The measurements of the contact diameters are chosen in a way to ensure maximum compatibility between different blade manufacturers, Chassis designers and even Pogo Pin suppliers (if you desire to use longer ones).

- The hole diameter for the pogo Pins is 1.6 mm and the solder pad on the bottom side allows for lower pin diameters up to 2.2 mm.
- The PCB diameter of 17.5 mm is very common between different chassis designers/suppliers, please note that some sanding may be required due to jagged edges from the breakaway tabs of the PCB
- The minimum recommended pogo pin length is 4.5 mm (5 mm Pins are included)
- The inner (negative) pin ring has a diameter of 6.5 mm, the outer (positive) ring has a diameter of 13.5 mm, the centre pin is for blade data. Please make sure that your blade side PCB has fitting ring diameters for proper contact when using blade PCBs from different manufacturers



The following figures show our blade side PCB (at 1:1 scale), which is the perfect match for this Hilt side connector PCB: