UUGear

Zero4U

4-Port USB Hub for Raspberry Pi Zero

User Manual

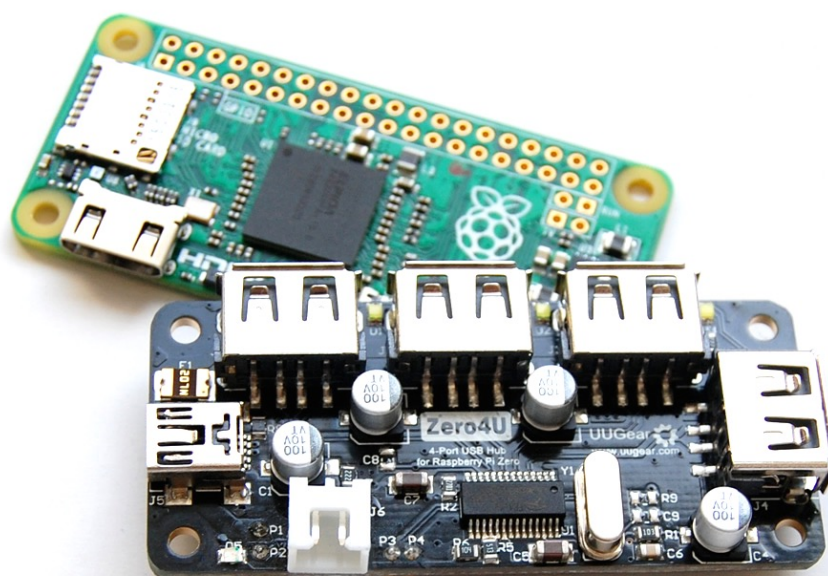# Table of Content

Product Overview

Zero4U is a 4-Port USB hub designed for Raspberry Pi Zero. It extends the only data micro USB port on Raspberry Pi Zero and gives you 4 standard USB ports, which allows you to connect more USB devices to your Raspberry Pi Zero.

The board size of this USB hub is exactly the same with Raspberry Pi Zero, and can be firmly attached under Raspberry Pi Zero back-to-back. There are 4 pogo pins on the USB hub board and they will attach the +5V, GND, USB D+ and USB D- testing pad at the back of Raspberry Pi Zero, so you don't either need soldering wires, or the USB-OTG cable and USB – mini USB cable to connect the USB hub and Raspberry Pi Zero.
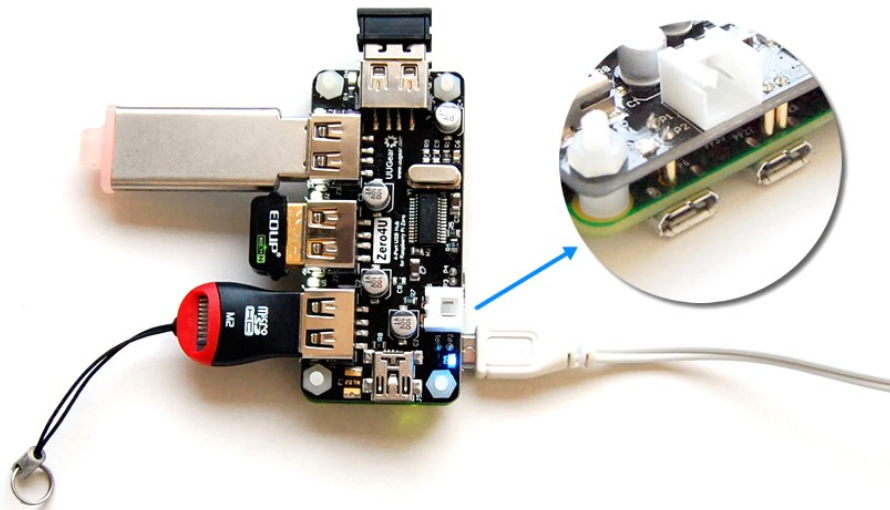
Although it is designed for Raspberry Pi Zero, you can still use it as a normal USB hub for other models of Raspberry Pi, or any computer that has USB port.

The figure below shows how the USB hub looks like:
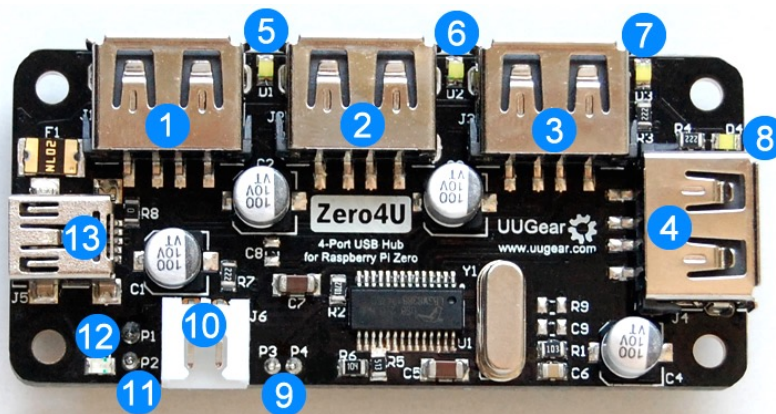
1~4)   Downstream USB ports

5~8)   White LEDs as activity indicators

9)   Two pogo pins at back for data connection

10)   Alternative DC 5V power in

11)   Two pogo pins at back for power connection

12)   Blue LED as power indicator

13)   Upstream USB port

Package Content

Each package of this USB hub contains:

- 4-port USB hub board x 1

- Plastic standoff x 4

- M2.5 x 10mm screws x 4

- M2.5 nuts x 4
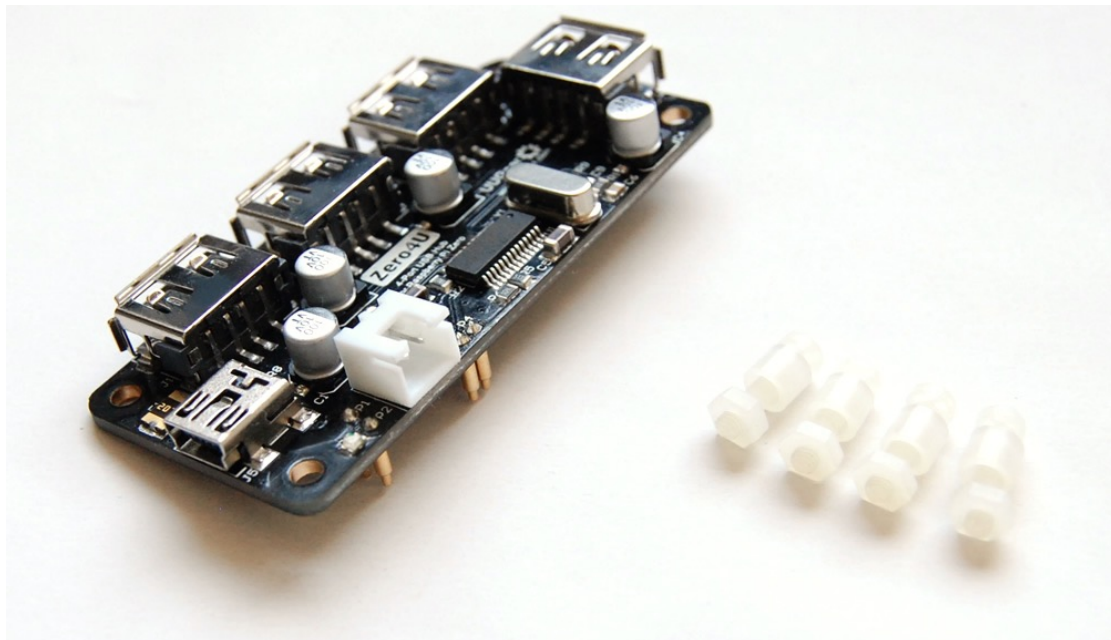
Specifications

Dimension:	65mm x 30mm x 9mm
Weight	14g (net weight without any accessory)
Standards	USB Specification Revision 2.0 and 1.1 compatibility Single Transaction Translator (STT)
Data Speed	USB v1.1: 12 Mbps USB v2.0: 480 Mbps
USB Ports	Upstream: 1 (mini-USB or via pogo pins) Downstream: 4
LED Indicators	Power: 1 (blue) Port Activity: 4 (white)
Power Mode	On Raspberry Pi Zero: Self-Power On Other Models: Bus-Power or Self-Power
Output Voltage	DC 5V
Output Current	Bus-Power: maximum 500mA for all ports Self-Power: maximum 2A for all ports
Static Current	~1mA
Operating Temperature	0℃~70℃
Storage Temperature	-20℃~80℃
Humidity	0~80%RH, no condensing

About Powering Mode

A USB hub could be powered by the USB bus (bus-power mode), or be powered by the power supply (self-power mode). Bus-power mode is simpler as it does not need to have external power supply, but it has quite limited ability to power the devices on the USB hub. When you are trying to power more devices with higher current, it is recommended to use the self-power mode.

This USB hub supports both bus-power mode and self-power mode.

Self-Power Mode

This USB hub in self-power mode can output up to 2,000mA current for all USB ports.

When you attach this USB hub to Raspberry Pi Zero, it will take power from the Zero and work in self-power mode.

If you use a USB - mini USB cable to connect this USB hub to other models of Raspberry Pi, and you connect power supply to the USB hub (via the white JST XH2.54 2-pin connector on board), then it is still working in self-power mode. For Raspberry Pi A, B or A+, it will also back-power the Raspberry Pi, unless you remove the resistor R8 on board.

Bus-Power Mode

This USB hub in bus-power mode can output up to 500mA current for all USB ports. If you are using the first revision of Raspberry Pi A/B, the maximum output current for all USB ports is only about 100mA, because the USB port on Raspberry Pi (first revision) has a 140mA polyfuse.

If you use a USB - mini USB cable to connect this USB hub to other models of Raspberry Pi, and you don't connect power supply to the USB hub, then it is will work in bus-power mode, and it will draw power from the USB bus.

Usage Guide

To attach this USB hub to Raspberry Pi Zero, simply put them back-to-back together and place the plastic standoff between them, then use the plastic screws and nuts to firmly fix the 4 corners.

Please make sure to attach in the correct direction, so the 4 pogo pins on the USB hub can accurately contact to the PP1, PP6, PP22 and PP23 testing pads on the back of Raspberry Pi Zero.
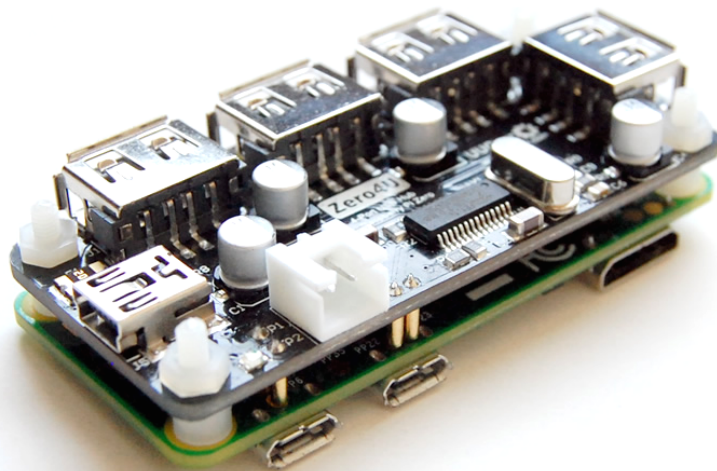
Now you can connect power supply to Raspberry Pi Zero, either micro USB port will do, then you will see both Raspberry Pi Zero and the USB hub are powered. If you plug a USB device into any of the 4 USB ports, the port activity LED (white) will light up.

Remarks: this USB hub has only one transaction translator (TT) for all downstream USB ports. Please try not to connect any USB 1.1 device to the USB hub; otherwise all devices on the hub will be slowed down to the USB 1.1 speed (12 Mbps). If you only connect USB 2.0 devices to this USB hub, all of devices on the hub can work with USB 2.0 high speed (480 Mbps), if they support USB 2.0 standard.

If you want to connect this USB hub to other Raspberry Pi models, you will need a USB - mini USB cable (not included in the package).
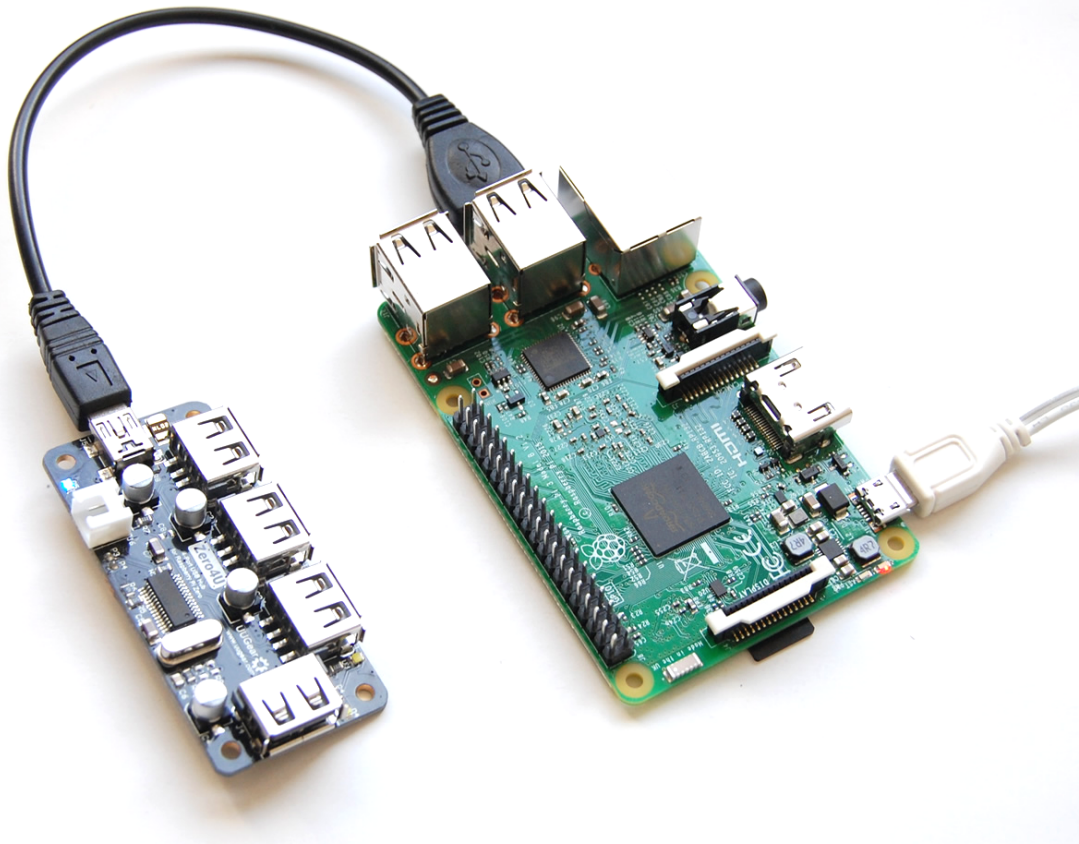
In the picture, the power supply is connected to Raspberry Pi, and the USB hub is powered by the USB bus. This will limit the output current to 500mA for all USB ports on the hub.

If you also connect an alternative power supply to the USB hub (via the white connector on board), the USB hub will work in self-power mode and it can output up to 2A current for USB ports.