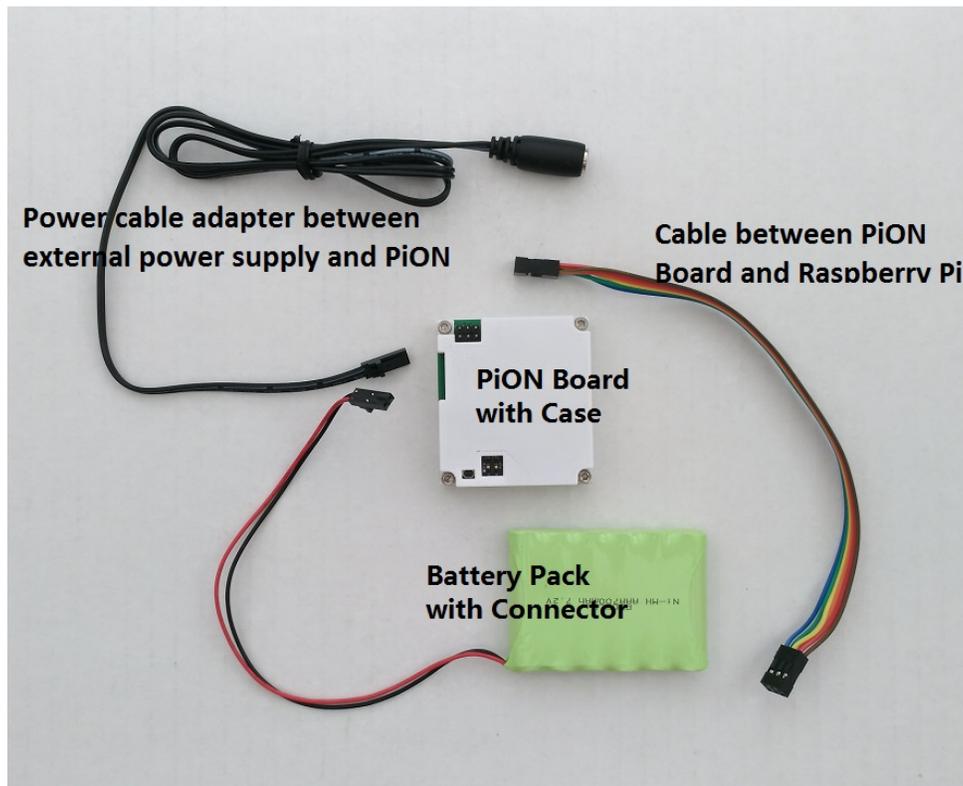


# PiON User Manual

Thank you for choosing the PiON, an uninterruptible power supply (UPS) for the Raspberry Pi.

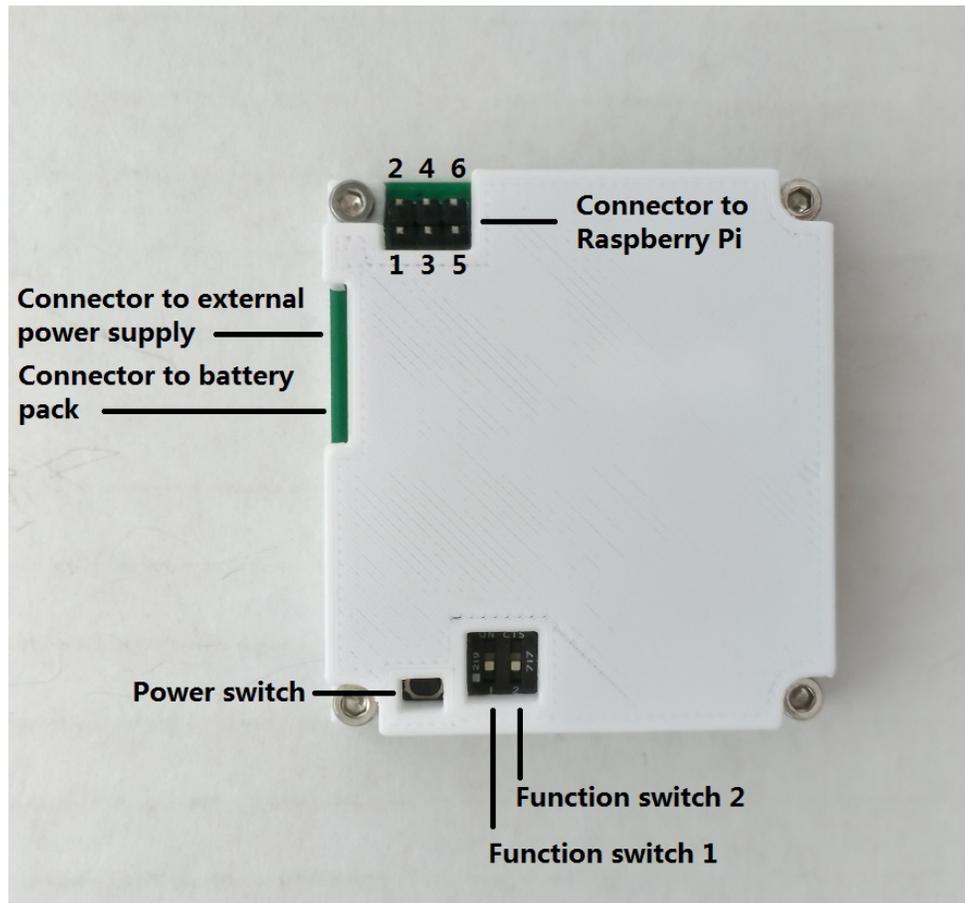
## Package Contents

- PiON board (x1)
- 7.2V 700mAH AAA NiMH battery pack (x1)
- 6 pin jumper cable (x1)
- 2.1mm barrel jack to Molex SL adapter (x1)



**Note:** The external power supply is not included in the package. We usually use an AC/DC power adapter (center positive). The output of the external power supply should be rated for more than 10W with an output voltage between 7V and 15V.

## PiON Board



There are four LEDs on the board. One red and one green LED can be found under the power connectors. One red and one green LED can be found to the right of the function switches. A detailed description of these LEDs can be found at the end of this guide.

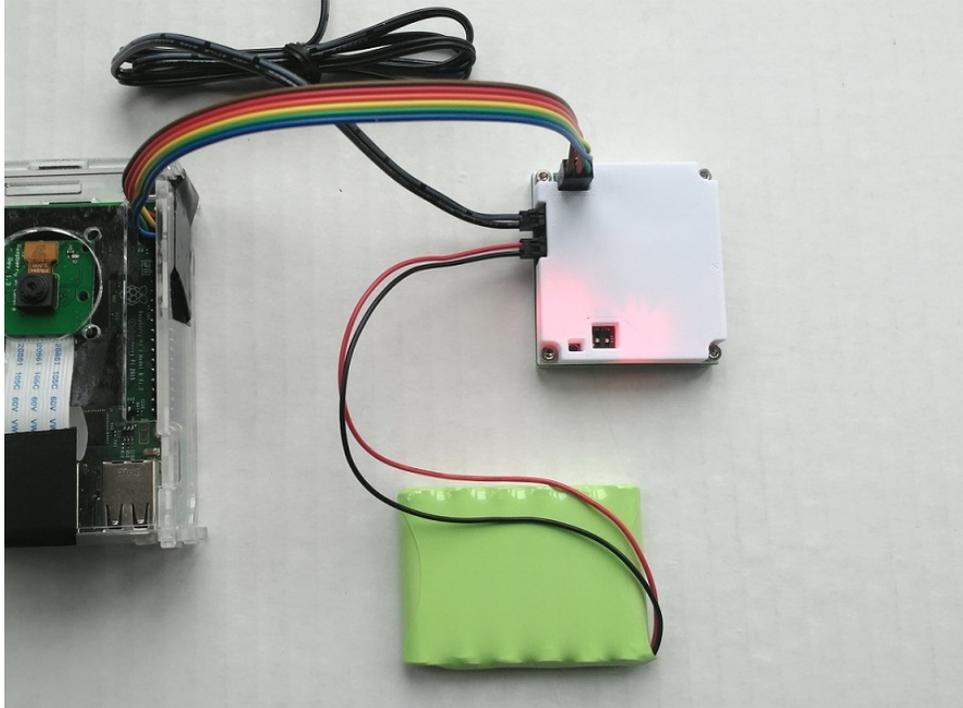
There is a 6-pin header to connect to the first 6 pins of the GPIO port on the Raspberry Pi. To reduce confusion when using the cable provided, please make sure the **brown colored wire is used for Pin 1 of both the PiON and Raspberry Pi.**

There are two configuration switches. The default setting for both switches is off. A detailed description of these switches can be found at the end of this guide.

There is one power button. This button allows you to safely power off the Raspberry Pi instead of cutting the power suddenly. If you use this button to shut down the Raspberry Pi, you can turn the Raspberry Pi on by pushing it again.

## Setup

A picture of a finished setup can be seen below.



### **Step 1:** Connect the PiON to the Raspberry Pi

Using the cable provided, connect Pin 1 of the PiON to Pin 1 of the Raspberry Pi. To reduce confusion, make sure the brown colored wire is used for Pin 1 of both the PiON and Raspberry Pi.

### **Step 2:** Connect the battery pack to the PiON

The battery pack in the package is pre-charged, so as soon as you connect it to the PiON, it will start to provide power to the Raspberry Pi.

### **Step 3:** Connect external power to the PiON

If the battery pack is low in charge, it will be automatically charged by the PiON when external power is present.

### **Step 4:** Download the PiON control program to the Raspberry Pi

This program communicates with the PiON board and allows for a soft shutdown when power is lost. Run the following commands to install the program.

```
wget wugrobot.com/products/pion/pion.tgz
tar xf pion.tgz
cd pion
./install.sh
sudo raspi-config (select Interfacing Options, I2C, enable)
sudo reboot
```

## Status LEDs

- **Battery Status** – Red LED under the power connectors  
This LED will be on if either a battery or external power is connected.
- **Charge Status** – Green LED under the power connectors  
This LED will be solidly on if the battery is charging quickly. It will be blinking if the battery is charging slowly. Slow charging happens when the battery is either very depleted or close to fully charged.
- **External Power Status** – Green LED to the right of the function switches  
This LED will be on if external power is connected (>6.5V).
- **5V Output Status** – Red LED to the right of the function switches  
This LED will be solidly on if 5V is being provided to the Raspberry Pi. It will be blinking if the Raspberry Pi is shutting down. The power will turn off 60 seconds after the blinking starts

## Configuration Switches

- **Configuration Switch 1** – External power loss behavior  
When the external power is lost, the PiON automatically switches to using battery power. This happens without an interruption to the Raspberry Pi.  
If this switch is **off**, the PiON continues to run the Raspberry Pi until the battery is depleted (<6.5V).  
If this switch is **on**, the PiON immediately signals the Raspberry Pi to shut down.
- **Configuration Switch 2** – Battery Size  
If this switch is **off**, the PiON assumes an AAA sized NiMH battery pack.  
If this switch is **on**, the PiON assumes a AA sized NiMH battery pack.