

# Pico UPS

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The Pico-UPS-B is a dedicated UPS (Uninterruptible Power Supply) module designed for Raspberry Pi Pico. It incorporates a Li-po battery switching charger with power path management, and a voltage/current monitoring chip that allows monitoring the battery operating status via the I2C bus. What's more, the male pin header makes it possible to "stack" other modules on top.

## Features

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- Standard Raspberry Pi Pico header supports Raspberry Pi Pico series boards
- Incorporates Li-po battery switching charger with dynamic power path management, more stable power supply
- I2C bus communication, monitoring the battery voltage, current, power, and remaining capacity in real-time
- Multi battery protection circuits: over charge/discharge protection, over current protection, short circuit protection, and reverse protection, more safe and stable
- Onboard recharging indicator, power indicator, easy to check the battery status

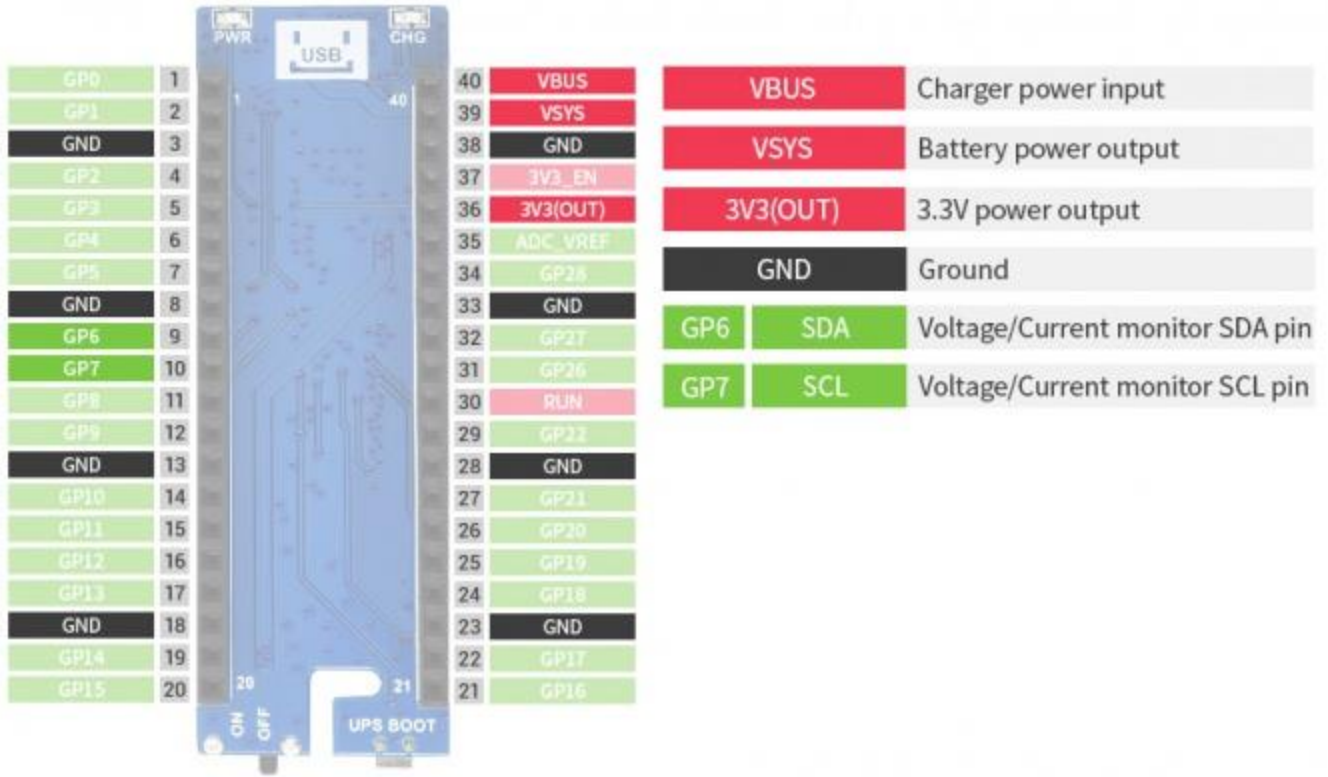
## Specifications

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- Recharge voltage: 5V
- Control bus: I2C
- Battery support: 600mAh 3.7V Li-po battery
- Dimensions: 60 × 21mm

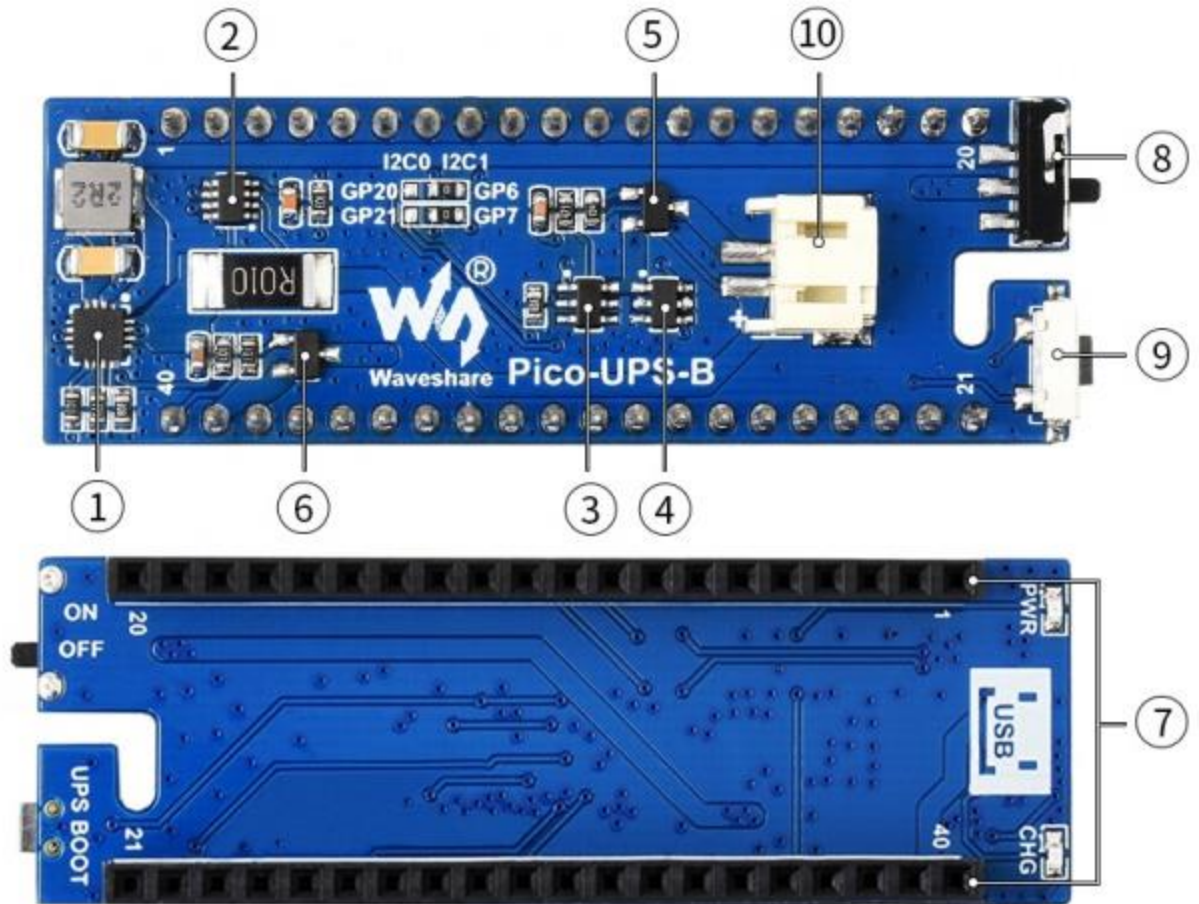
## Pinout

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## Dimension

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## SAFETY CAUTIONS

- Li-ion and Li-po batteries are quite unstable. They may cause fire, personal injury, or property damage, if they're not properly recharged or used.
- Do not reversely connect the polarities when recharging or discharging the battery. Do not use inferior charger/charging panel to recharge the battery.
- Do not mix use old batteries with new ones, avoid using batteries of different brands.
- When buying Lithium battery, should always make sure the battery specification is compatible with the expansion board. Choose batteries from formal manufacturer, and ensure the batteries will work stably and safely by aging test.
- Lithium batteries have limited cycle life, they will also deteriorate as time goes by. Should be replaced with new ones when the batteries reaching their max cycle life, or working over two years, whichever comes first.
- Should be placed carefully and properly, keep it away from inflammables and explosives articles, away from children, avoid any safety accident caused by careless storage.

## Setup Environment

You can refer to the guides of Raspberry Pi: <https://www.raspberrypi.org/documentation/pico/getting-started/>

# Working with Raspberry Pi

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1. Access Raspberry Pi and open the terminal
2. Download the download and unzip it to the Pico C/C++ directory. You need to follow the guides of Raspberry Pi to install SDK first.

```
wget -P ~/pico https://www.waveshare.com/w/upload/9/92/Pico-UPS-A.zip
cd ~/pico
unzip Pico-UPS-A.zip
```

## C examples

- Press the BOOTSEL button of Pico and connect the Pico to your Raspberry Pi by USB cable and then release it.
- Build and run the C examples

```
cd ~/pico/Pico-UPS-A/c/build/
cmake ..
make
sudo mount /dev/sda1 /mnt && sudo cp Pico_UPS.uf2 /mnt && sudo sync && sudo umount /mnt && sleep 2 && sudo
minicom -b 115200 -o -D /dev/ttyACM0
```

- The expected result should be as figure below:

Welcome to minicom 2.7.1

OPTIONS: I18n

Compiled on Aug 13 2017, 15:25:34.

Port /dev/ttyACM0, 13:10:48

Press CTRL-A Z for help on special keys

Voltage: 4.180 V

Current: 0.592 A

Percent: 98.3 %

Voltage: 4.180 V

Current: 0.588 A

Percent: 98.3 %



## Python examples

- Access Raspberry Pi and open the Thonny.
- Open the example by the IDE and save

