

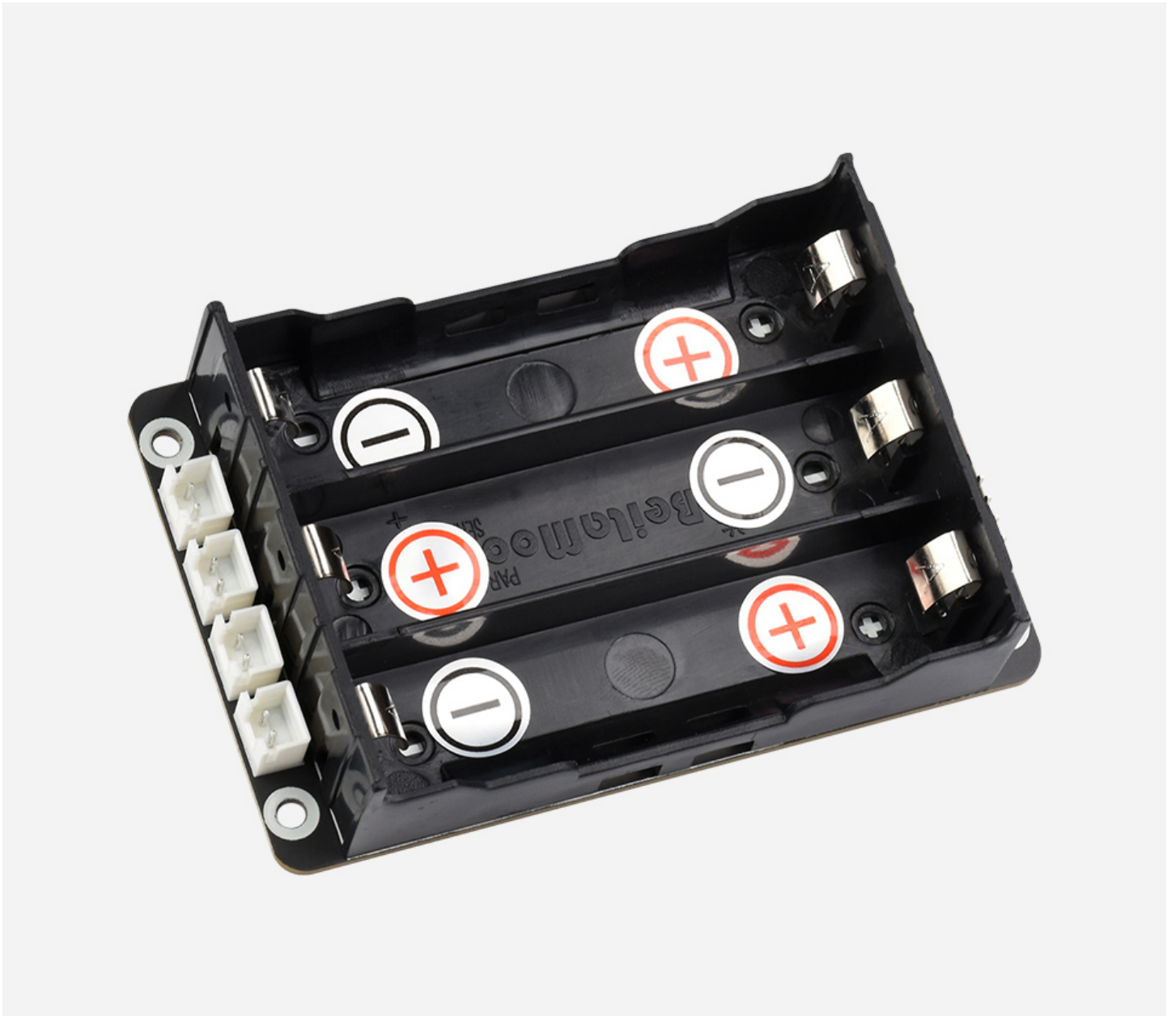


Uninterruptible Power Supply Module, Supports charging And Power output at the same time, 3S & 5V 5A Output

Uninterruptible Power Supply (UPS) Module, Supports Charging And Power Output At The Same Time, 3S & 5V 5A Output

Uninterruptible Power Supply Module 3S

Supports charging and power output at the same time, 3S * & 5V 5A output



* 3S indicates that powered by 3x 18650 Li batteries in series, the output range is about 9V~12.6V

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.

Features At A Glance

- Adapting various interfaces via cables, easy to integrate into mobile robots or industrial control equipment
- I2C bus communication, monitoring the batteries voltage, current, power in real time
- Multi battery protection circuits: over charge/discharge protection, over current protection, short circuit protection, and reverse protection, along with the equalizing charge feature, more safe and stable
- Onboard 5V regulator, up to 5A continuous output current, more sufficient power source for Raspberry Pi and Jetson Nano
- Batteries warning indicators, easy to check if the battery is connected correctly
- Comes with online development resources and manual

Specifications

OUTPUT VOLTAGE	Batteries series voltage; 5V 5A; 3.3V 300mA
CONTROL INTERFACE	I2C
BATTERY SUPPORT	3 x 18650 Li batteries (in series, NOT included)
CHARGER	12.6V 2A
DIMENSIONS	60 × 93mm
MOUNTING HOLE SIZE	3.0mm

Suitable For Raspberry Pi Series



Connecting with Raspberry Pi 5



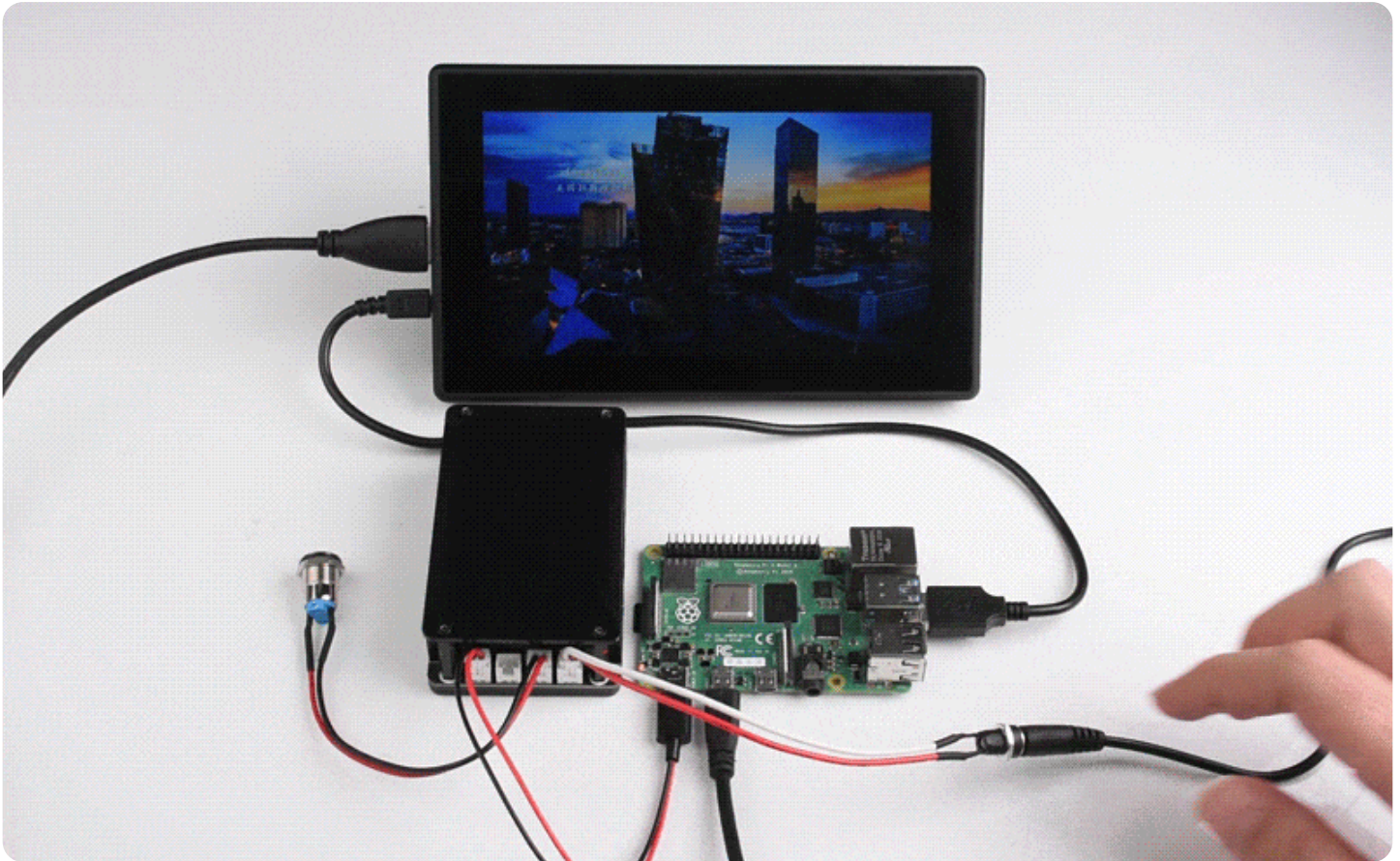
Connecting with Raspberry Pi 4B

* for reference only, please refer to the Package Content for detailed part list

Uninterruptible Power

It is able to charge the batteries and provide power output at the same time from external power supply

Automatically switch over to batteries output if external power supply is unavailable, keeps the system running without any trouble



Real Time Monitoring

Monitoring The Batteries Voltage, Current And Power Via I2C

```
pi@raspberrypi:~/UPS_Module_3S python3 INA219.py
Load Voltage: 11.00V — Rated voltage
Current: -0.407700 A — Current
Power: 2.972 W — Power
```

*Negative current indicates discharging, positive current indicate recharging

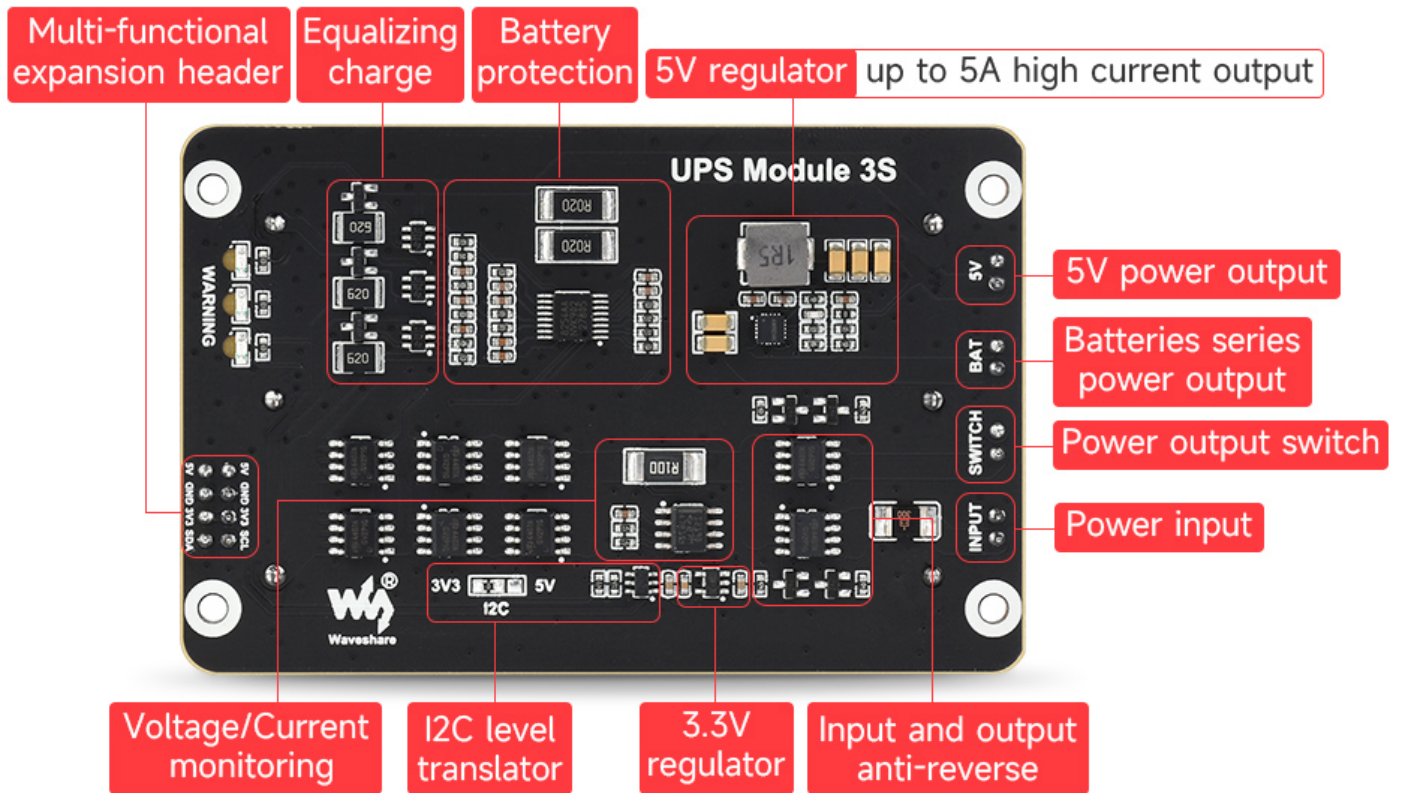


for reference only, the Raspberry Pi 4B and the batteries are NOT included.

Safe And Stable Circuit Design

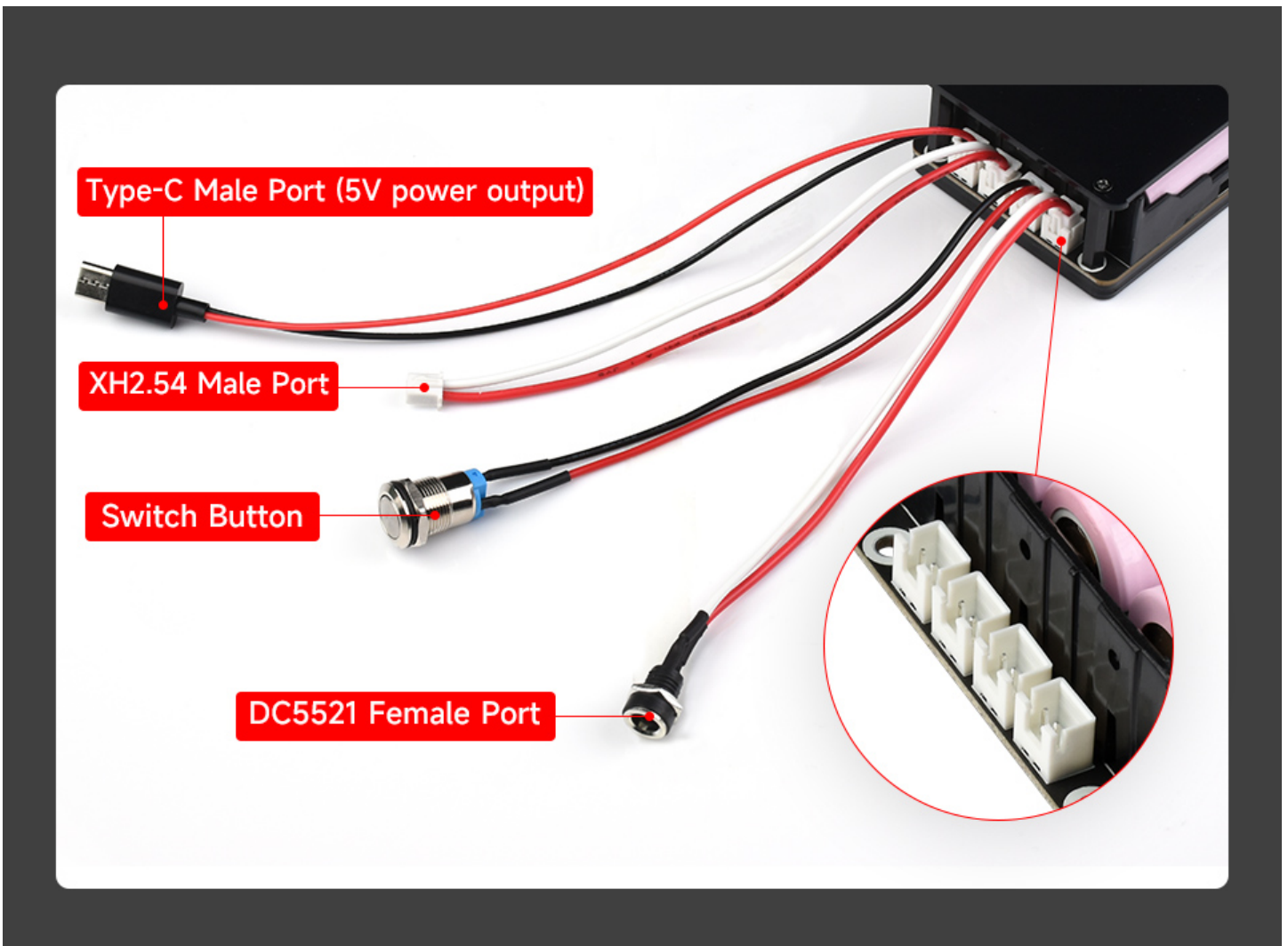
Protection Circuits For Over Charge/Discharge, Over Current, Short Circuit,
And Reverse

Along With The Equalizing Charge Feature, More Safe And Stable



Adapting Various Interfaces Via Cables

Easy To Integrate Into Mobile Robots Or Industrial Control Equipment

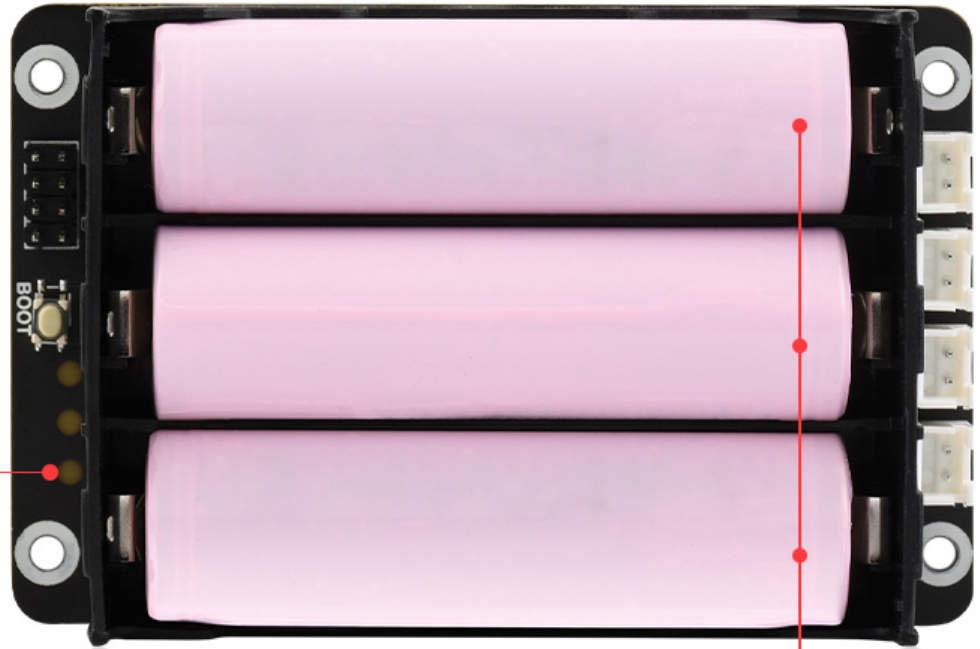


Battery Warning Indicators

Easy To Check If The Battery Is Connected Correctly

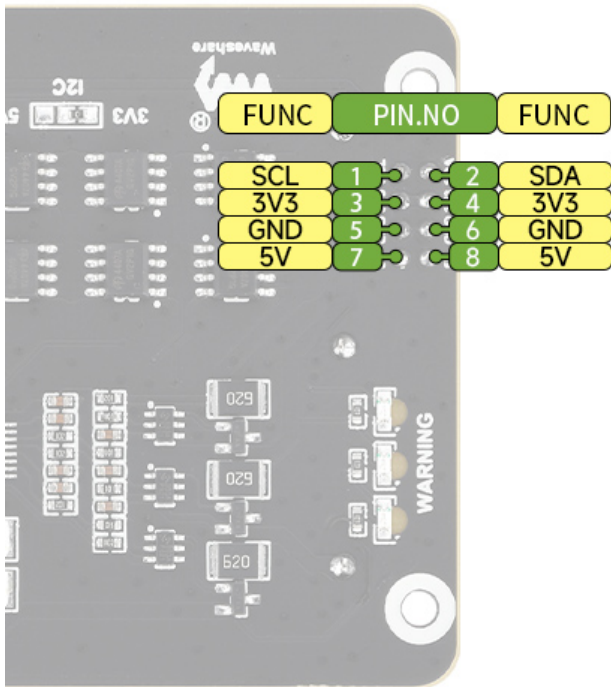
Battery warning indicators The indicator will light up red if related battery is reversely connected

Warning: DO NOT connect the charger if the indicator lighted up, otherwise the protection circuit would be broken down.

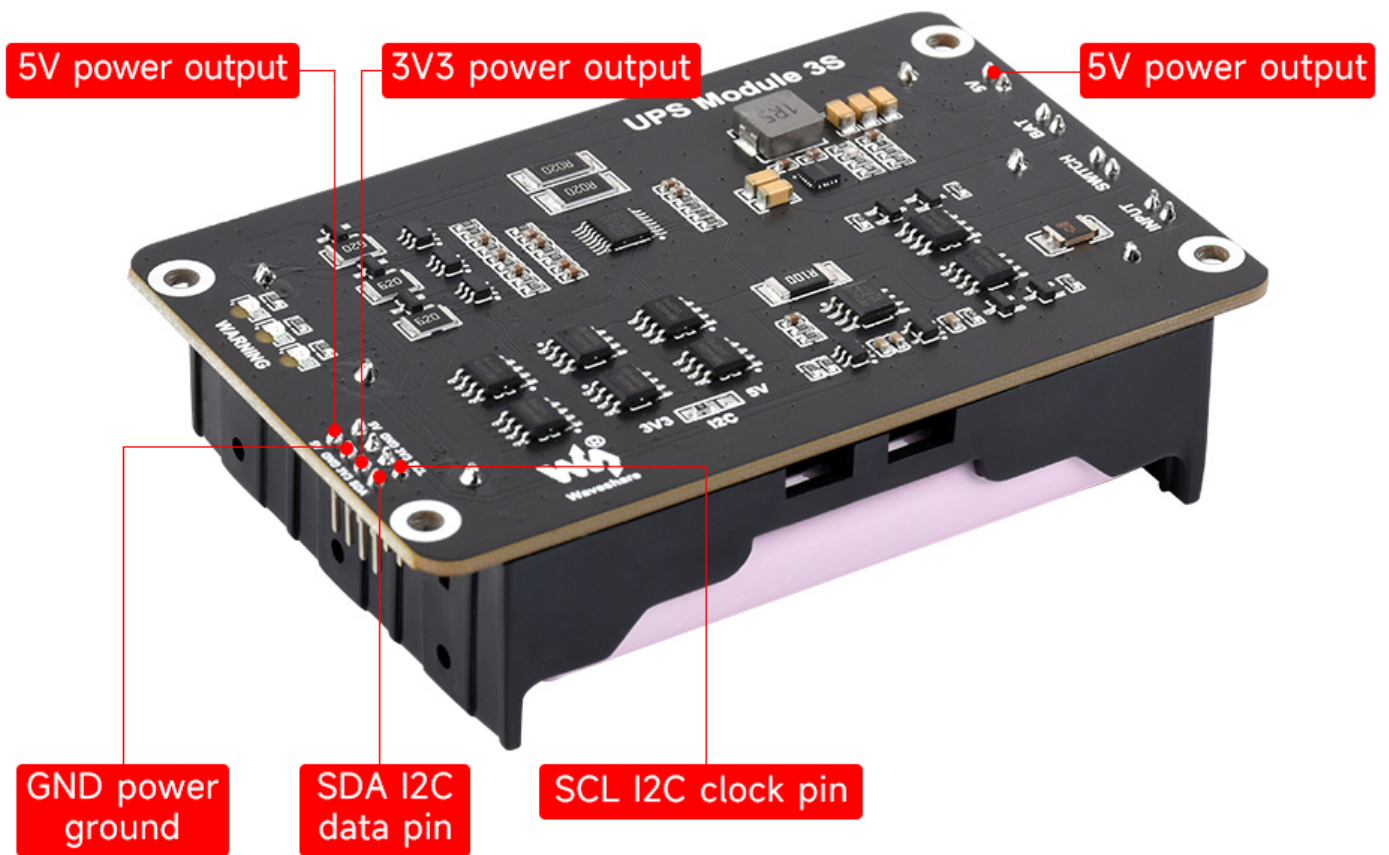


Support 3x 18650 Li-ion batteries (Not included) **Batteries**

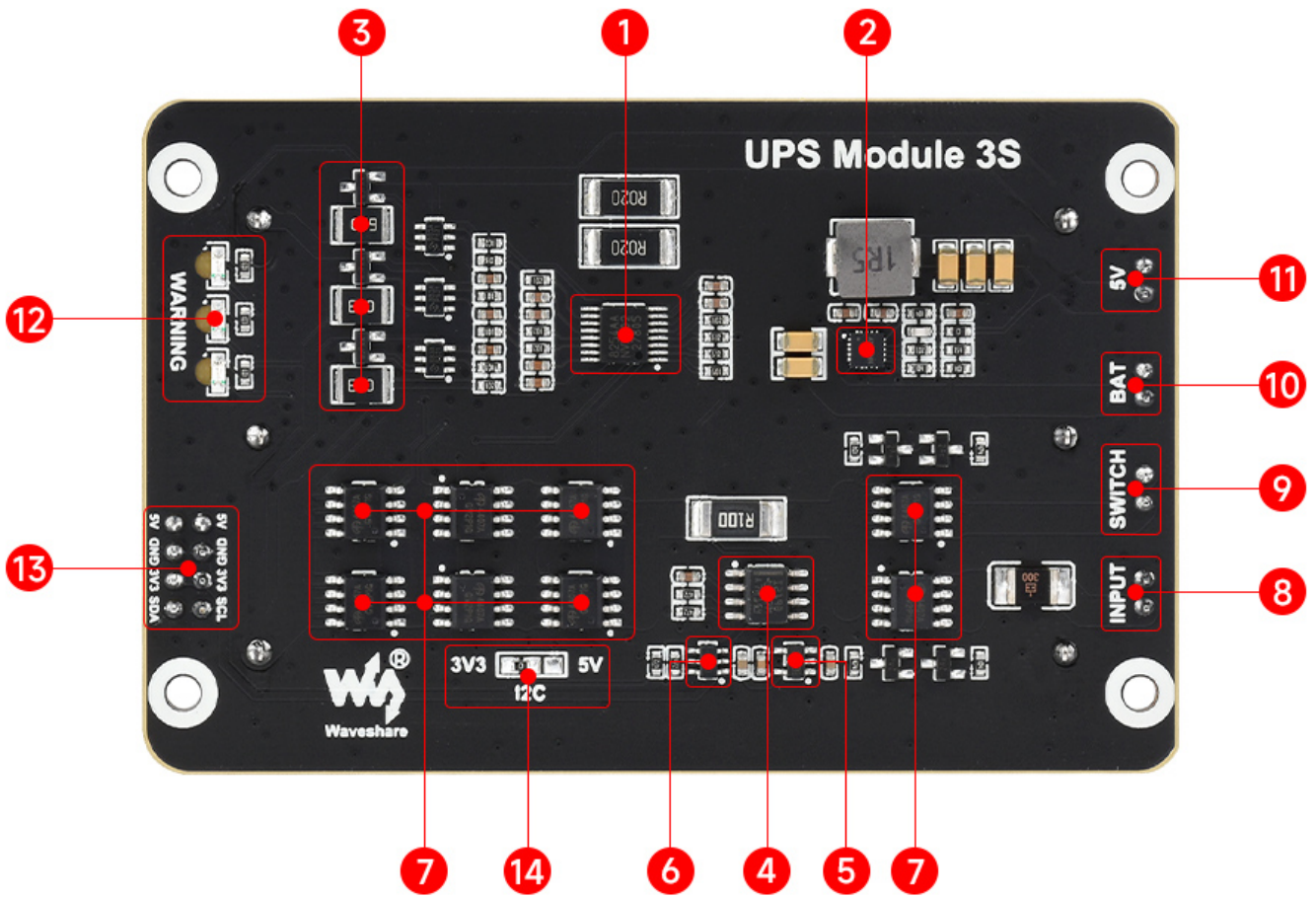
Interface Definition



- 5V 5V Power Output
- GND GND Ground pin
- 3V3 3V3 Power Output
- SDA I2C Data pin
- SCL I2C Clock pin



What's On Board



Chips

1. **S-8254AA**
Li battery protection
2. **SY8286**
5V voltage regulator
3. **HY2213**
Equalizing charge
4. **INA219**
Voltage/current monitoring
5. **RT9193**
3.3V voltage regulator
6. **NDC7002N**
Voltage translator

Others

7. **AO4407A**
Battery protection MOS tube
8. **Power port**
12.6 2A power input
9. **Power output switch**
10. **Batteries series power output**
11. **5V power output**
12. **Reverse warning indicators**
13. **Multi-functional expansion header**
14. **I2C level selection**
3.3V (default) / 5V

Easy To Install

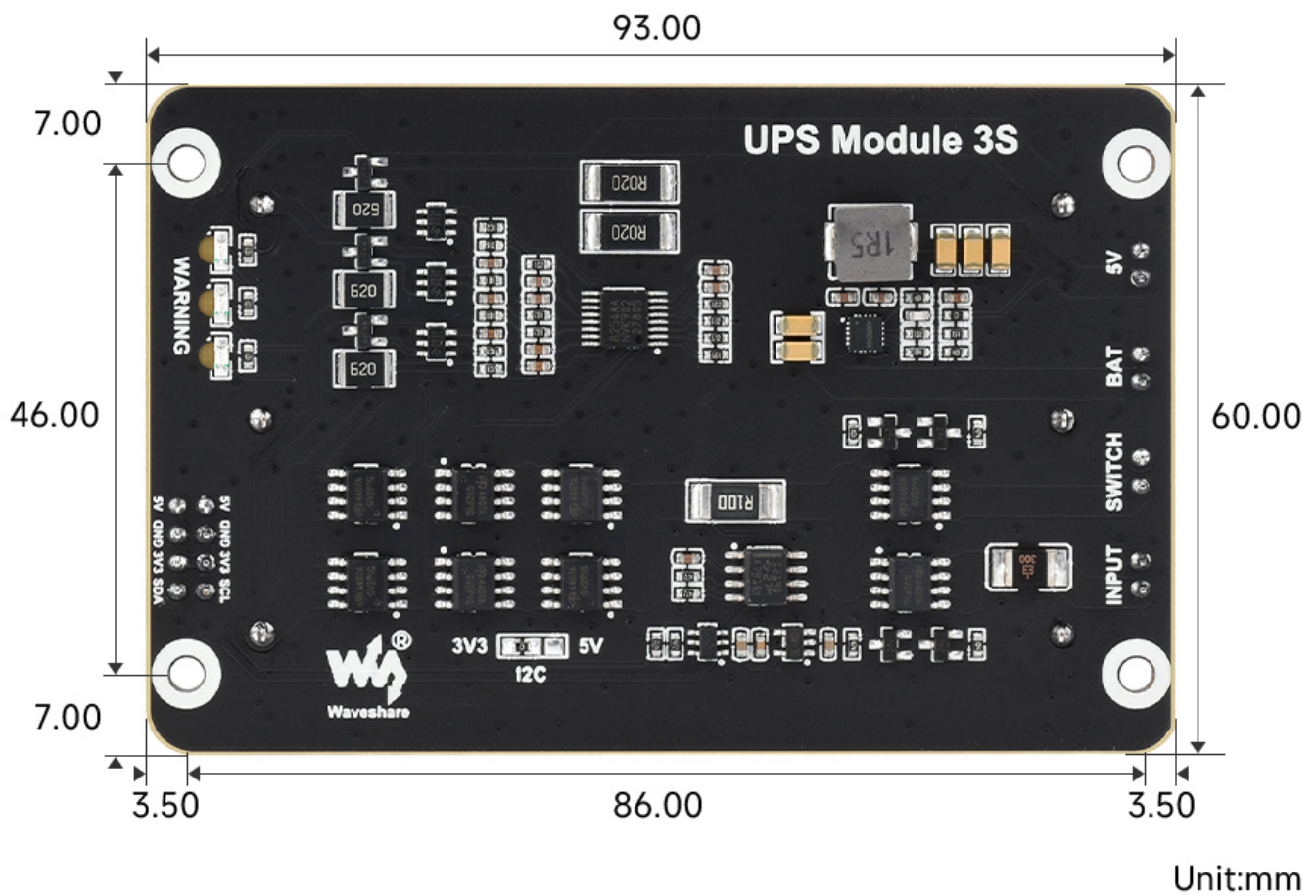


Product Show





Outline Dimensions



Resources & Services



WAVESHARE ORIGINAL



PROFESSIONAL TECH SUPPORT



RICH RESOURCES MANUAL & DEMO



User Manual



Circuit Diagram



Example Code



Dev Resources

WIKI: www.waveshare.com/wiki/UPS_Module_3S

- The 18650 batteries are NOT included
- Please note that the battery length SHOULD be less than 67mm, some batteries with protection plate in the market are NOT supported, [learn more](#)

1. UPS Module 3S x1
2. XH2.54 male self lock button switch ~15cm x1
3. XH2.54 male to DC5521 female cable ~15cm x1
4. XH2.54 dual connector cable ~15cm x1
5. XH2.54 male to Type-C cable ~20cm x1
6. Acrylic protection panels x1
7. Screws pack x1
8. OPTIONS 12.6V 2A Battery Charger x1

