

Power Supply Guideline of Smartduino UNO Boards

Power Sources

You can power Smartduino board via

- microUSB cable which can either be connected to Computer or USB Power Bank
- DC Jack – which can be connected to Battery or AC to DC Adapter

If both sources are connected preference will be given to DC Jack. If you are connecting both sources, never connect microUSB cable first before DC jack to prevent current going into computer. In this case connecting DC Jack first is recommended then you can connect the microUSB for programming.

Recommended Power Sources

Our recommended power source is a good brand microUSB Power Bank because it will allow you to operate on max Supported current and it will add more protection to the MCU from short circuit.

In case you want to connect to battery or adapter via DC Jack, since they don't have short circuit protection in them, your board will be vulnerable to Short Circuit. A short circuit can fry the Diode, 5V LDO and the MCU IC as well making the board unusable.

To prevent short circuit, please check wiring to the boards before powering up. You can also add a protection resistor in between the DC source and Smartduino board which will limit the max current drawn into the board.

Eg. If Voltage source is 12V, you can add 220ohm resistor in series with the board so that max current drawn in case of short circuit is $12V / 220\text{ohm} = 54.5 \text{ mA}$. The board just needs 22mA to function and input voltage > 6V.

FYI – DC Power Sources in Labs have short circuit and over current protection enabled by default. You can configure them to limit max current to 50mA.

In case you are damn sure that short circuit will never happen,

We recommend to get battery voltage in the range 7V – 12V and lesser voltage is more preferred.

Eg, if you have both 12V battery and 9V battery, we recommend to connect 9V because the 5V LDO will have to dissipate lesser heat and you can draw more current from it.

If you need to power via AC to DC adapter, we recommend you to buy a good 9V Switch Mode Power Supply Adapter because if you buy Transformer adapter you will not get exact 9V output in many cases:

- the AC voltages in India are not stable (they can go to 440V, hence 9V will become 18V)
- Transformer adapter voltage varies if current changes. Zero current voltage might be higher than 9V.

Max Supported Currents

Power Source	Input Voltage	Max Current from 5V Pin	Max Current from 3.3V Pin
microUSB	5V	same as microUSB source	400mA
DC Jack	7V	420mA (stable at 80°C)	400mA – other current drain
DC Jack	9V	210mA (stable at 80°C)	210mA – other current drain
DC Jack	12V	120mA (stable at 80°C)	120mA – other current drain
DC Jack	18V	60mA (stable at 80°C)	60mA – other current drain

The 3.3V LDO draws current from 5V LDO so its max limit is decided by max limit of 5V LDO and other current drains like MCU, current drain from 5V output pin.

We do not recommend to run the board on its boundaries of max Voltage (18V) and max Current (as per above) .