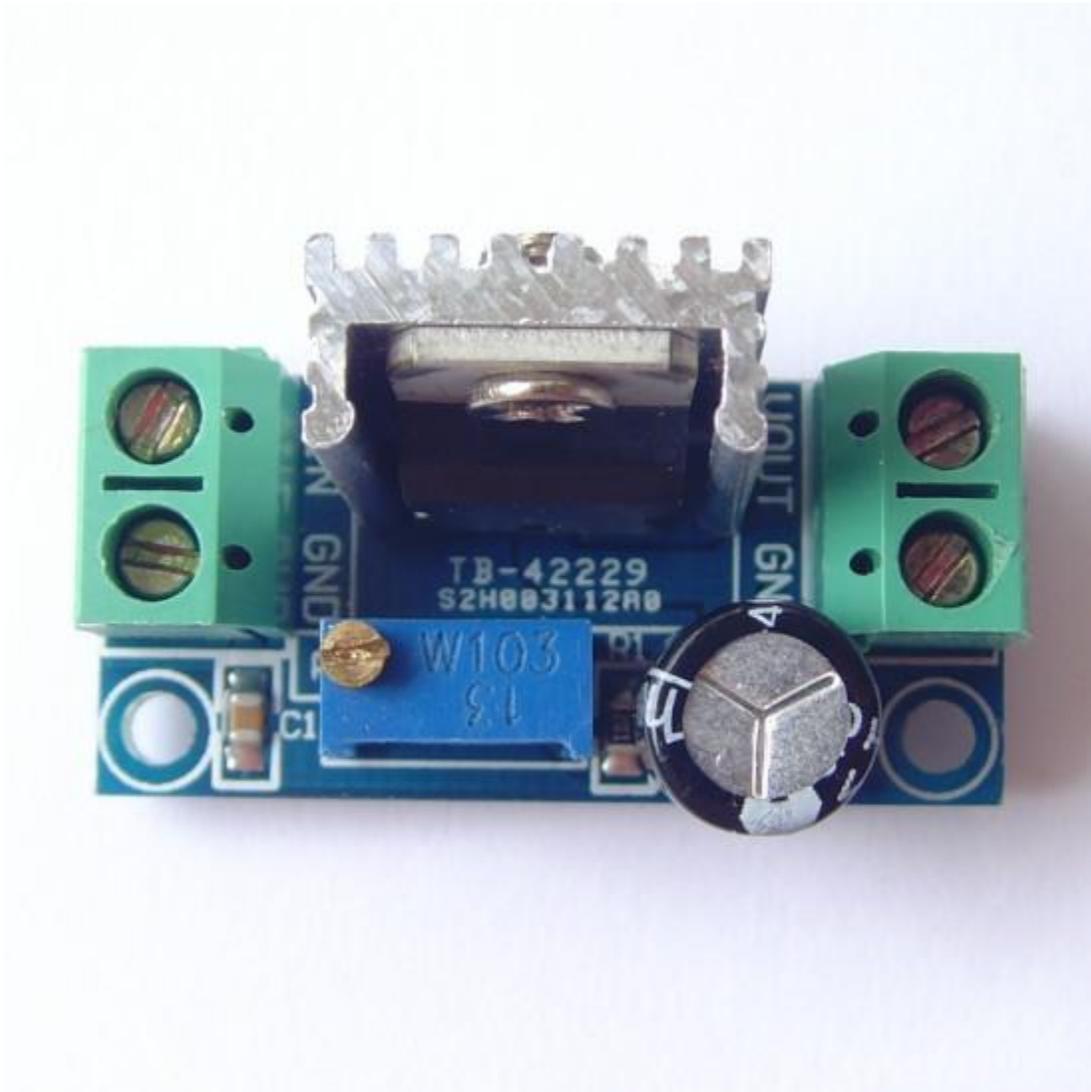


LM317 DC-DC CONVERTER STEP-DOWN CIRCUIT



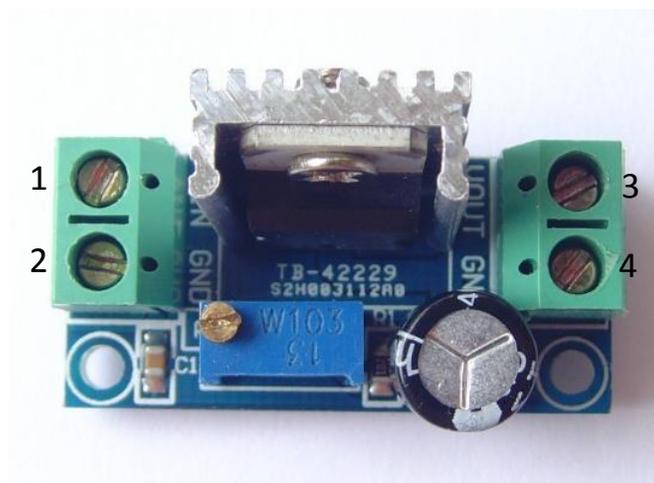
Description

The LM317 DC-DC converter is an electronic circuit for converting a DC source voltage from one level to a lower level. This module is important in some portable electronic devices such as cell phones and laptops, which are primarily supplied by power from batteries. The step-down voltage can be easily adjusted and is therefore more efficient than using multiple batteries to achieve the same thing.

Specifications

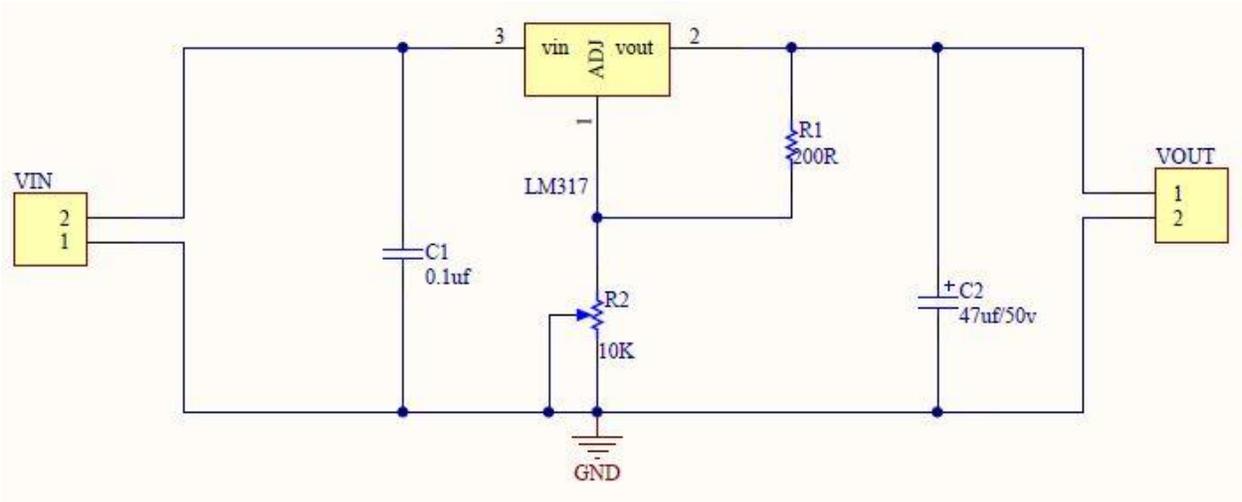
- Output current: 1.5 A (minimum), 2.2 A (typical)
- Input and output voltage difference ($V_I - V_O$) : 40 VDC (maximum)
- Adjustable output voltage range: 1.2 ~ 37 v
- Working temperature: 55 ° C to + 150 ° C
- Output current: 1.5 A
- Input voltage: 4.2 ~ 40 V
- Working temperature: 0 ° C to 125 ° C
- Characteristic frequency: 100 (MHz)
- Module size: 35.6mm x 16.8mm

Pin Configuration

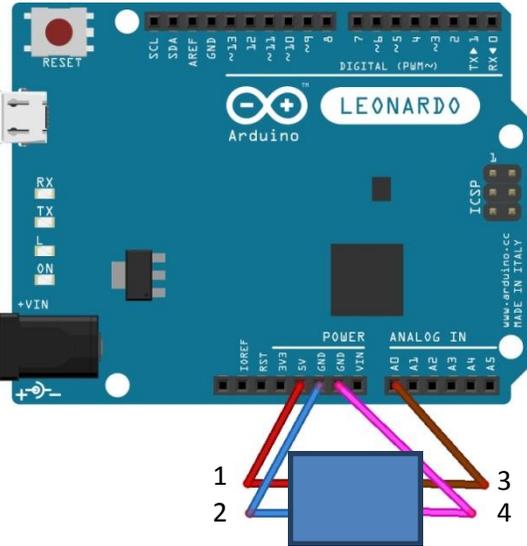


1. **VIN**: input level
2. **GND**: input cathode
3. **VOUT**: output level
4. **GND**: output is negative

Schematic Diagram



Wiring Diagram



Sample Sketch

```
double value;

void setup(){
  Serial.begin(9600);
}

void loop(){
  value = analogRead(0) * (4.78 / 1023);
  Serial.print(value);
  Serial.println("V");
  delay(250);
}
```

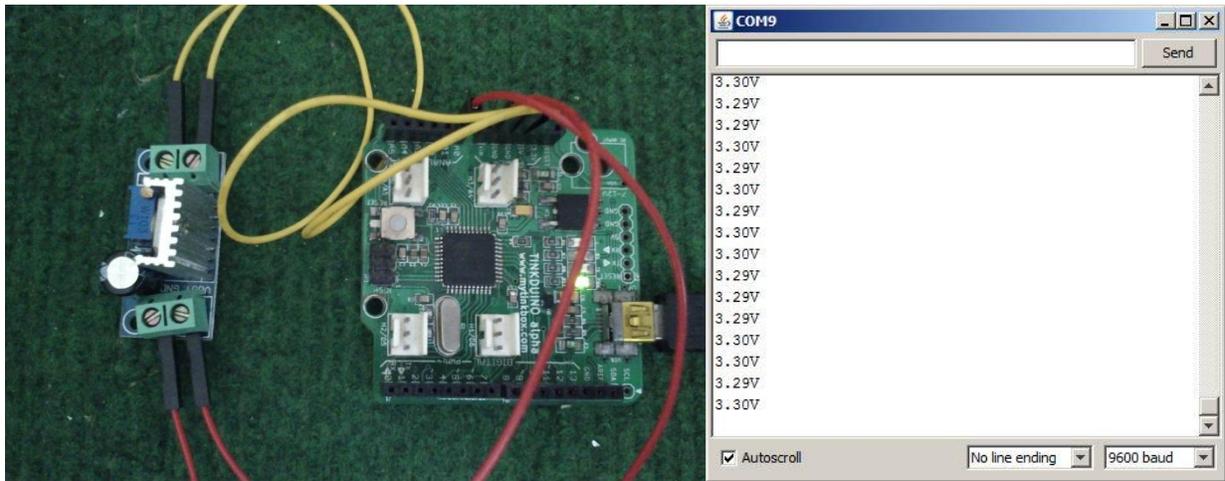
How to test

The components to be used are:

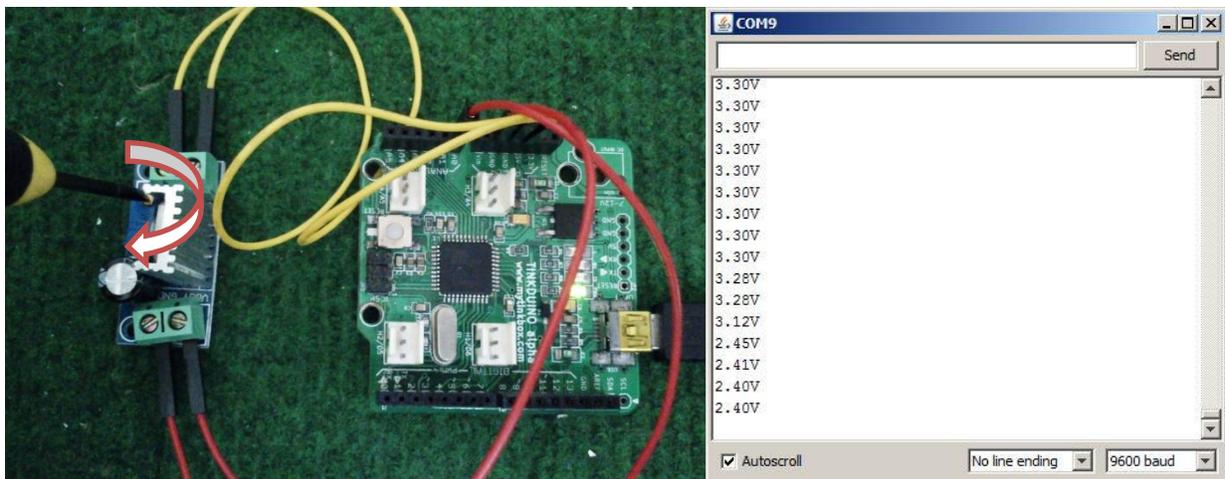
- Microcontroller (any compatible arduino)
 - LM317 dc-to-dc converter step-down circuit
 - 1 Pin M-M connectors
 - 2.4mm screw driver
 - USB cable
1. Connect the components based on the figure shown in the wiring diagram using a M-M pin connector. VIN pin is connected to the 5V power supply, GND pins are connected to the GND, and VOUT pin is connected to the analog output pin. Pin number will be based on the actual program code.
 2. After hardware connection, insert the sample sketch into the Arduino IDE.
 3. Using a USB cable, connect the ports from the microcontroller to the computer.
 4. Upload the program.
 5. See the results in the serial monitor.

Testing Results

The serial monitor shows the output stepped down voltage. Results can also be tested using a digital multimeter connected across the output pins. An approximate value was obtained through analog reading * ($V_{IN}/1023$). The measured value of V_{IN} (4.78V) was used in the equation instead of 5V.



When adjusted clockwise:



When adjusted counter clockwise:

