

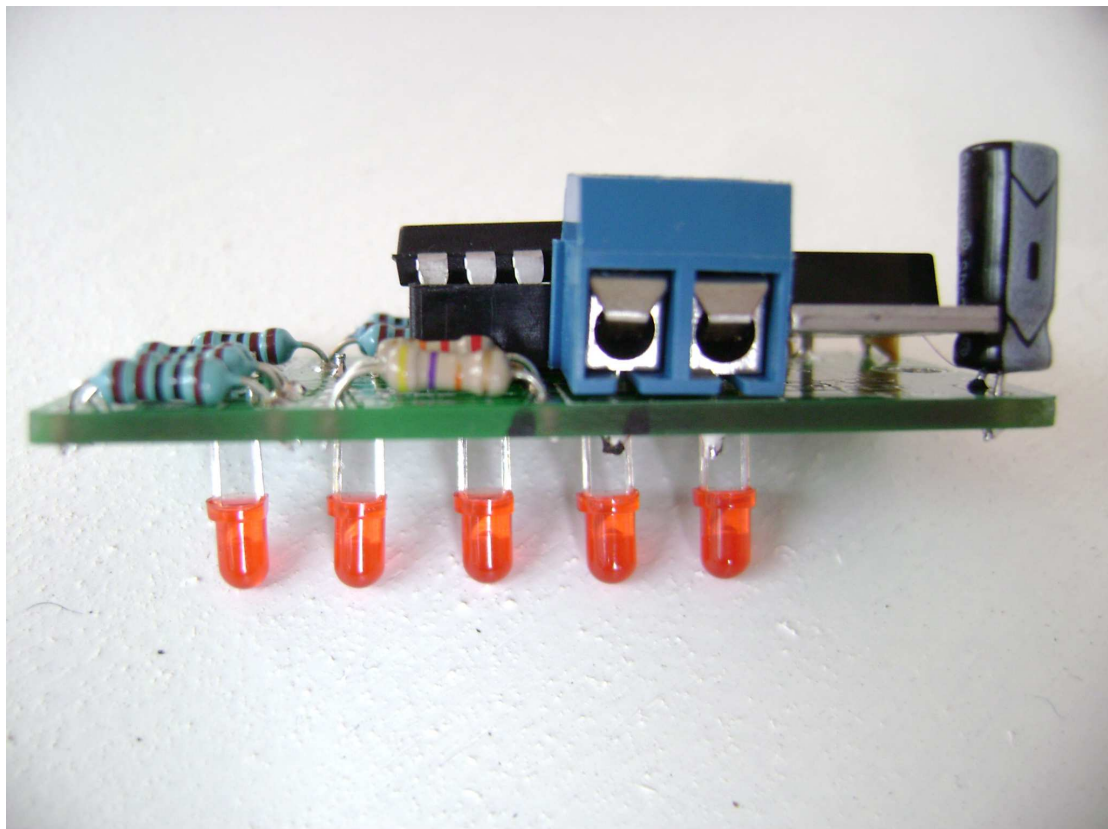
# Usb Electronic kits



[www.usbelectronickits.com](http://www.usbelectronickits.com)



## Led voltmeter datasheet



# Usb Electronic Kits

A very useful voltmeter with indicator leds without the need of power supply! It has 5 indicators for 5 voltage levels (5,9,12,24,30 volt dc)

## Functionality

The kit is based on a quad opamp LM324.

All the needed power is directly from the voltage you measure.

The first led turns on when the measured voltage reaches 5V.

The other four leds are connected to the four outputs of the opamps.

With the help of a voltage divider we can reduce the measured voltage from 0-30 volt to 0-3 volt. This new voltage is driven to the non inverting inputs of the opamp. The voltage reference for the inverting inputs is taken from a voltage divider again.

Each opamp operates as a comparator that compares the two inputs. If the voltage level comes above the reference voltage the output of the opamp goes high and drives the led that is connected to it.

When the measured voltage reaches 30 volts all the leds are turned on!

## Easy power up

The kit operates with the voltage it measures. You don't need an external power supply!

There is a 2 pin terminal block on the kit to apply the measured voltage!

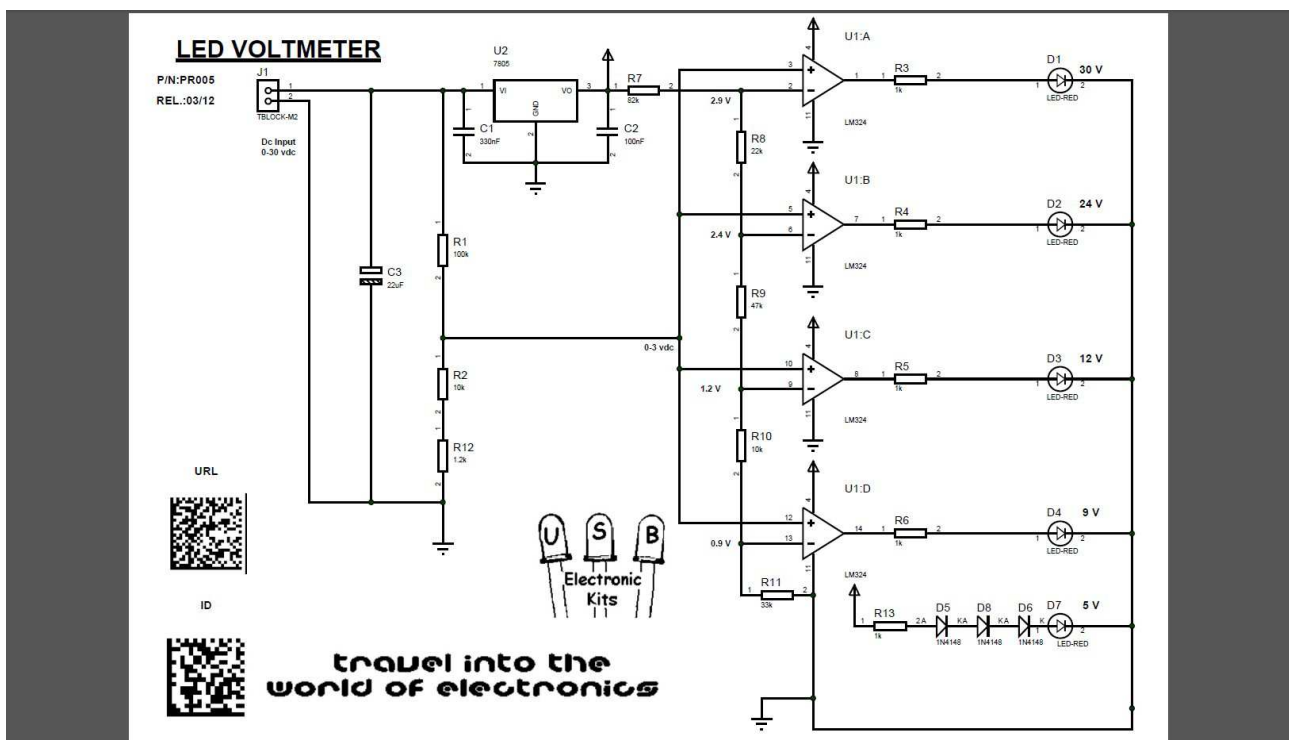
## Flexibility

You can use this kit as a voltmeter for a dc to dc converter or for a power supply.

You can use it as a tool to measure voltage levels everywhere too.

## Common parts Datasheets and schematics

The kits use only familiar electronic components! General purpose transistors and op-amps and generally "found everywhere" electronic parts!



## Technical Features

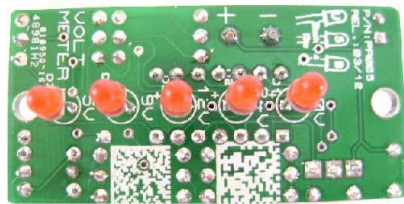
**Layers :2**

**PCB Thickness : 1.6mm**

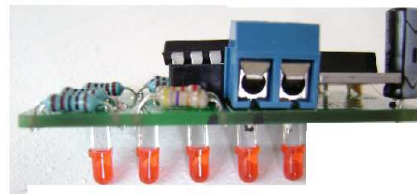
**Dimensions : 50 mm x 25 mm ( 2 inch x 1 inch )**

**Operating Voltage : 0-30 vdc**

**Operating current : 18 ma max (for 30 volts power)**



## Usb Electronic Kits Led Voltmeter



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