



Precise power supply with adjustable output voltage within range 1.5-32V/3A



The LM338 integrated circuit based power supply module. LM338 integrates all components of a high-quality voltage regulator. A precision multi-turn potentiometer is used to control the output voltage.

Specifications

- supply voltage within range 5-24V AC or 5-33V DC
- output voltage 1.5-32V DC
- maximum output current 3A
- built-in overload protection and short-circuit protection

Functional description

The schematic of the power supply is shown in Figure 1. The standard stabilizer application is extended by a rectifier bridge, capacitive filtering input voltage and multi-turn potentiometer. The LM338 is protected against overheating and short-circuit. LED1 indicates that the power supply is on. The output voltage is adjusted by a multi-turn, precision potentiometer P1. The maximum voltage applied to the module input must not exceed 24 V AC.

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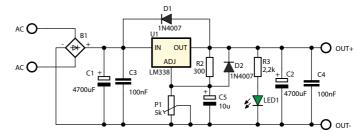
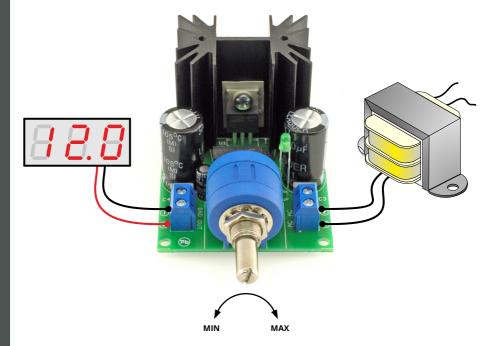


Figure 1. Schematic diagram

Assembly and test

Assembly is typical. It starts with the smallest components and ends up with the biggest ones.

The power supply is ready to operate immediately after the input voltage is applied.









Start off by soldering the printed circuit elements in order from smallest to largest. The unit assembled flawlessly, using the supplied components will operate immediately after switching on the power supply.

Component list

Resistors:

R2:220 Ω (red-red-brown-gold)
R3:2,2kΩ (red-red-red-gold)
$PR1:precision \ potentiometer \ 5k\Omega$
Capacitors:
C1, C2:1000µF !
C3, C4:100nF (also marked as 104)
C5:10µF !
Semiconductors:
D1, D2:1N4007 or similar !
B1:rectifier
U1:LM338 !
LED1:LED diode
Others:
CON1, CON2: terminal block connection
heatsink + fixing elements

Assembly in 4 steps

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While assembling the components marked with an exclamation mark attention should be paid to their polarity. Symbols of the components on the PCB as well as photos of assembled sets may come in useful. To access highresolution images, download the PDF file.

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C1

C2

C5

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output voltage within range 1.5-32V/3A Precise power supply with adjustable Solder capacitors C3, C4, terminal block 2 Solder resistors R2, R3 and diodes D1, D2 connectors and capacitor C5 • 111• . 11. 4 . -0 --200 Z00 Solder potentiometer and voltage stabilizer Solder bridge, capacitors C1, C2 and LED1 3 with heatsink DIFFICULTY LEVEL S ۲ ø

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- Battery or wall-adaptor are safe devices. They do not require special attention unless main voltage is connected to an output e.g. a relay.
- If the kit is used to switch currents greater than 24V it is necessary to have the installation and performed by a trained professional authorized for such work. The kit may only be used in such application if it was installed in a safe to touch enclosure.
- · Never exceed the limits or ratings listed in the 'Specifications' section at the this user guide.
- If the kit is used in schools or educational facilities or similar institutions the operation must be supervised by trained and authorized staff.
- The product itself and all parts thereof (including packing material) are not suitable toys for childern! (choking hazard, risk of electric shock, ...)

Failures in modern electronic component are very rare as 95% of non-working kits are due to poor soldering or components placed in the wrong location or orientation so please check your work carefully.

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