



Robots, Parts, and Custom Solutions



Regulator Board Kits

Assembly and Operation

Revision Date: March 10th, 2015

SUPERDROIDROBOTS.COM

SuperDroid Robots

Regulator Board Kits

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1 Assembly

1.1 Recommended Tools

- 25 Watt solder iron with a screwdriver tip
- Solder
- Solder remover (such as solder braid)
- Screwdriver
- Small needle nose pliers
- Multi-meter (necessary for troubleshooting and verifying operation)
- Safety glasses

1.2 Assembly Sequence

Assembly order is not terribly important. The following steps assume basic soldering skills. We have provided some basic soldering tips in the link below.

<http://www.superdroidrobots.com/shop/custom.aspx/soldering-tips/23/>

Tips:

- Where ever possible solder joints are kept as far from traces as possible or on the top side of the board. However, great care needs to be made to ensure excess solder is not applied and shorts the junction to an adjacent trace. Before powering the board a close inspection needs to be made to ensure no shorts are present.
 - The other common mistake is creating "dry sockets". Dry sockets will look like the solder joint is fine, but upon closer examination the solder is only joined to the board or pin. These connections will yield spurious behavior that is very difficult to troubleshoot. It is important that both the board junction and the pin are heated sufficiently to allow the solder to flow and bond the two components.
 - The figure on the cover shows where all the components are located on the circuit board. The assembly sequence will require referral back this image for positioning of the electronic components.
 - All the components should be placed on the top of the board (the labeled side) and soldered from the backside.
1. Insert capacitors. The positive leg goes in the marked hole that connects to the traces. The negative hole is connected to the ground planes. The 16V regulator goes closest to the LED. The 35V rated capacitor goes closest to the fuse.
 2. Insert the 1k Ohm resistor marked R1 leading to the LED. Orientation is not important. Use the color bands to identify the resistors resistance.
 3. Insert the LED into the area marked LED1. The negative leed is marked with a line and is connected to the resistor. The negative leg of the LED is indicated by being shorter. The base of the negative side is also trimmed to a flat edge.
 4. Insert the regulator. Orientation is important. Please refer to the individual product picture to verify.

2 Operation

1. Connect power leads to the terminal strip. With polarity matching the silk screen. To ground terminals are provided to make wiring easier. The input voltage needs to be about 2 VDC higher than your output. For example, for a 5VDC regulator the input voltage will need to be at a minimum of 7VDC, for the 6VDC version you will need at least 8VDC.
2. Connect the load to the terminal strip into the terminals marked as output. Pay close attention to the polarity markings on the silk screen.
3. The center terminal is common ground. The terminal closest to the label is regulated 5, 6, or 9 VDC up to 1Amp. The regulators are rated to 1.5Amps with a heat sink, but a larger fuse will likely be required.

3 Notes

1. For the board kits sold with switching regulators, the input capacitor as well as the fuse are redundant. The regulators themselves have built in circuit protection and come equipped with their own input and output capacitors. Due to general noise cause by the switching regulator it is advised to have additional 0.1uF or 1uF ceramic capacitors on the input of what you are powering. This should help alleviate switching noise.
2. When using the adjustable kits, you may need a higher resistance value for R1 when output voltages are higher than 12V to help prevent the LED from burning out from having too much current sent through it.
3. When connecting linear regulator to higher input voltages, or if you may push the 1A or 1.5A current limits, the heat sink option will be required for proper operation. If the temperature of the regulator gets too high you will have stability issues in the output voltage levels.