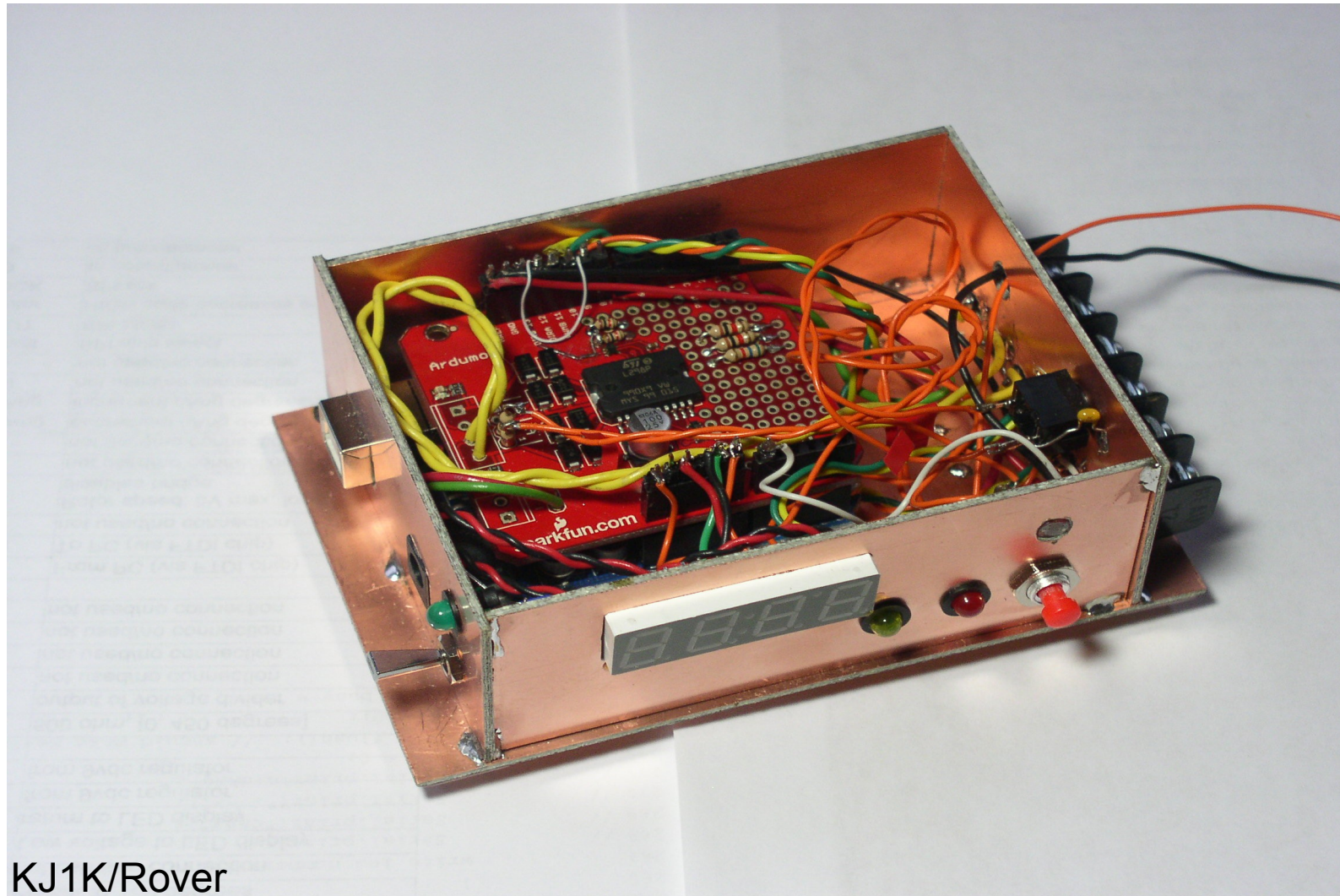


# Home brew Yeasu Rotor Controller



KJ1K/Rover

# Background:

- I operate as a microwave rover with one or more dishes mounted on the rear of my vehicle.
- In 2008 I built a rotor controller based on the MSP430 micro-controller. I used the MSP430 controller successfully for several years but my MSP430 design only has a single serial port and I want two ports, one to interface with Roverlog, and another to interface to a display.





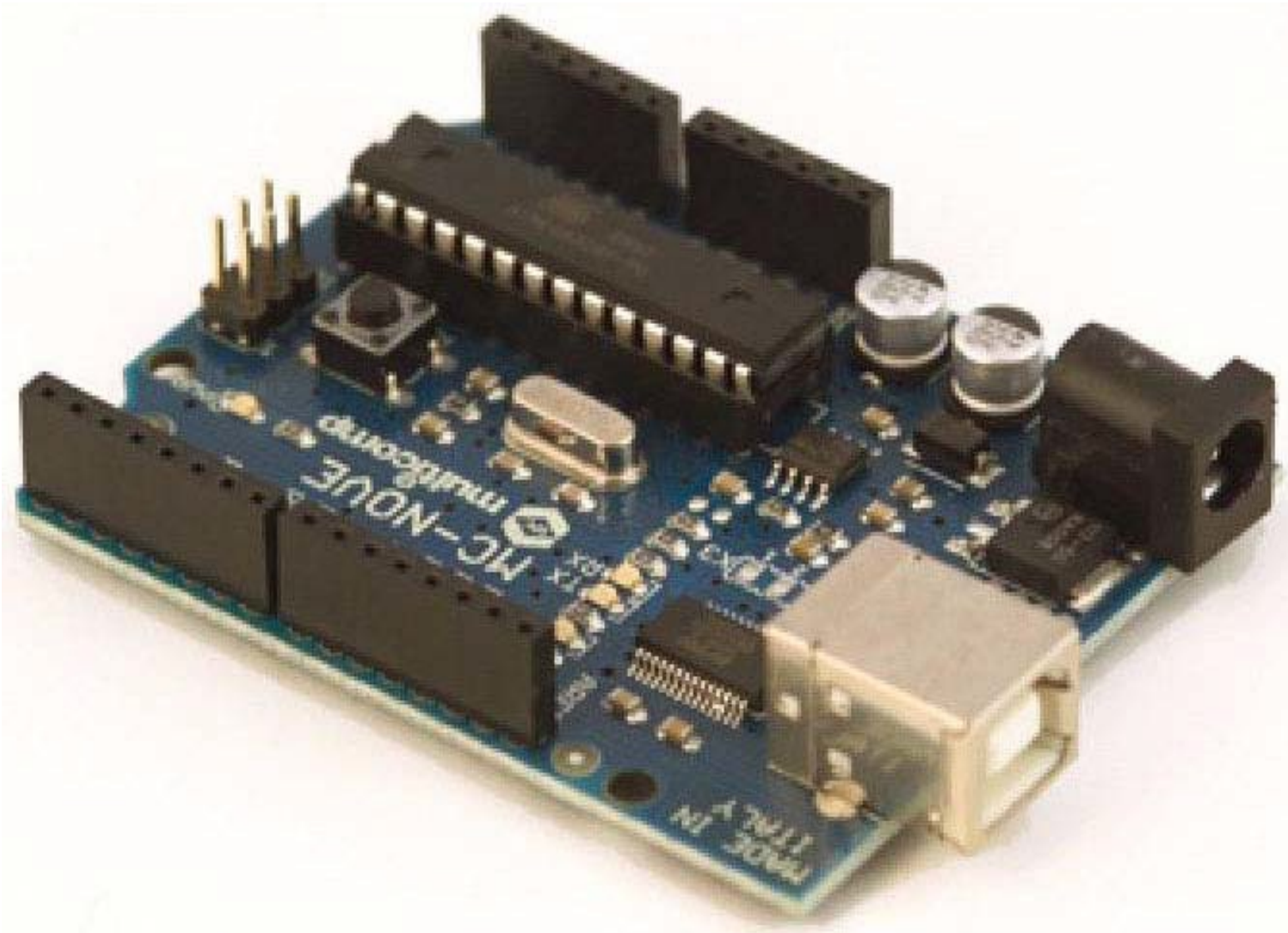
## Features:

- Powered by 14 VDC vehicle power.
- Interfaces with Roverlog program via a USB port (Rc2800DC rotor)
- Displays rotor position in degrees
- Manual and automatic positioning
- Accurate to  $\pm 2$  degrees

## Approach:

- Use available hardware and software from the “arduino” open hardware project ([www.arduino.cc](http://www.arduino.cc))
- Use a dimmable LED display for daylight/night use
- Use a solid state “H” switch instead of relays
- Supply 18 vdc to the Ardumoto “shield” and 9 vdc to the CPU module
- Calibrate the rotor by measuring actual angle vs digital readout of the rotor potentiometer

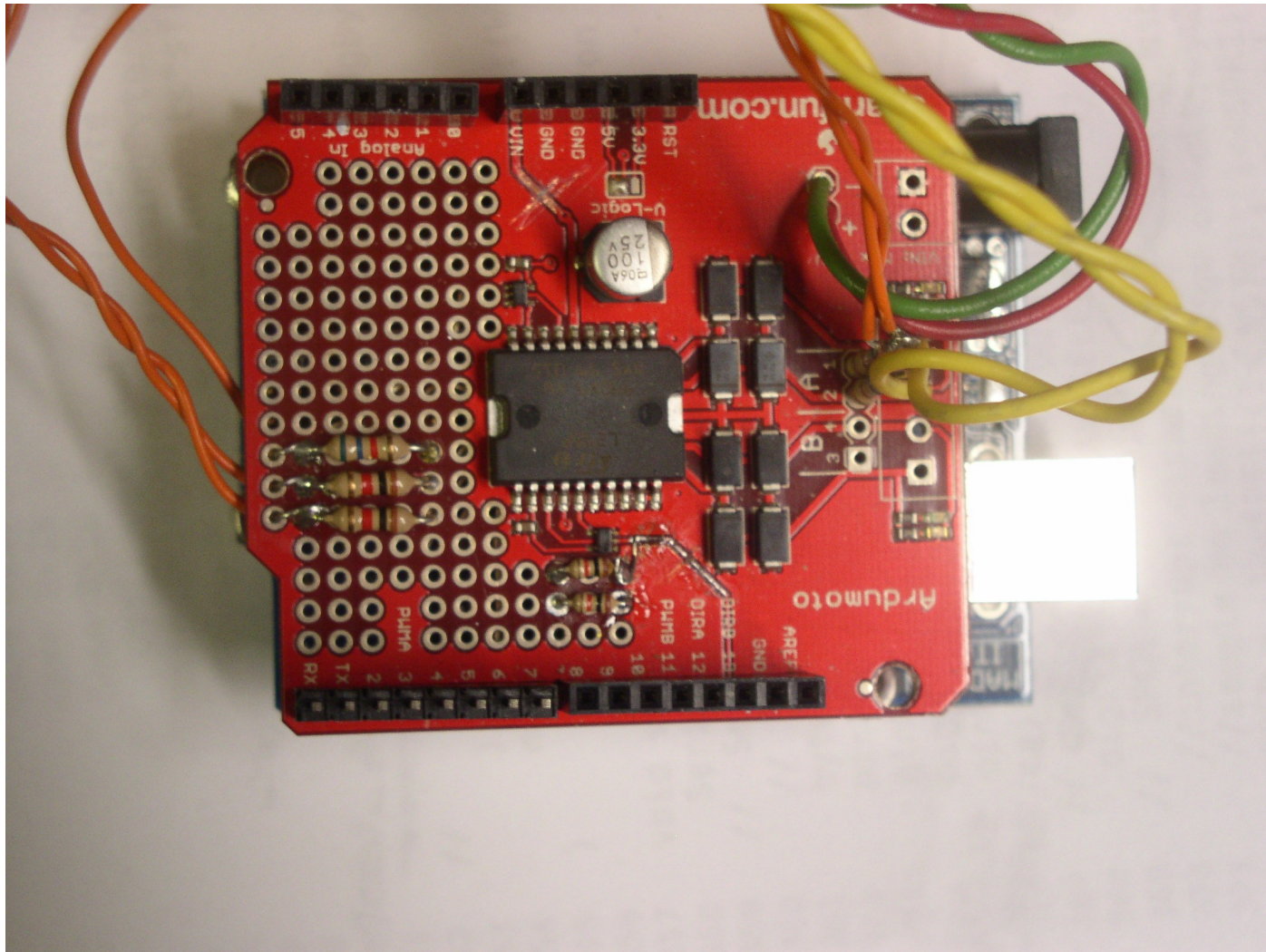
# My CPU Board (obsolete)







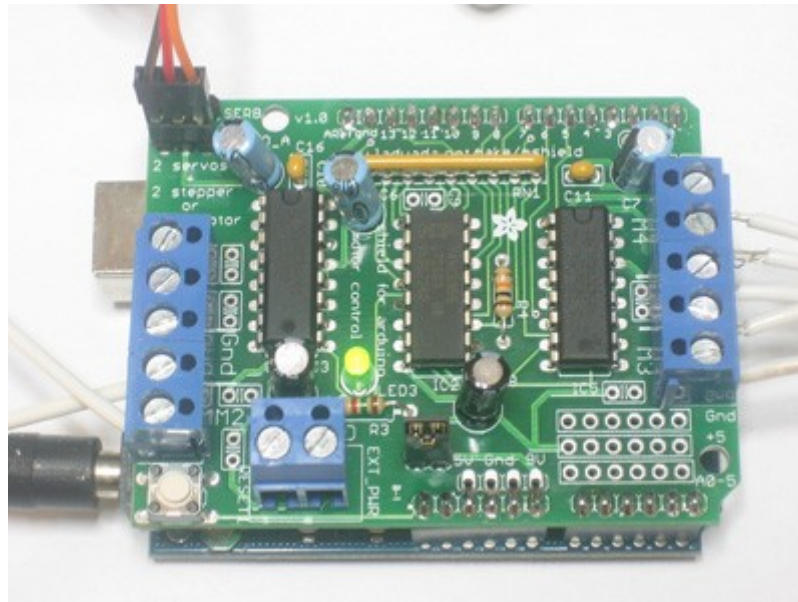
# Ardumoto Shield from Sparkfun





# Alternate Motor Shield

Adafruit Motor/Stepper/Servo Shield for Arduino kit - v1.2

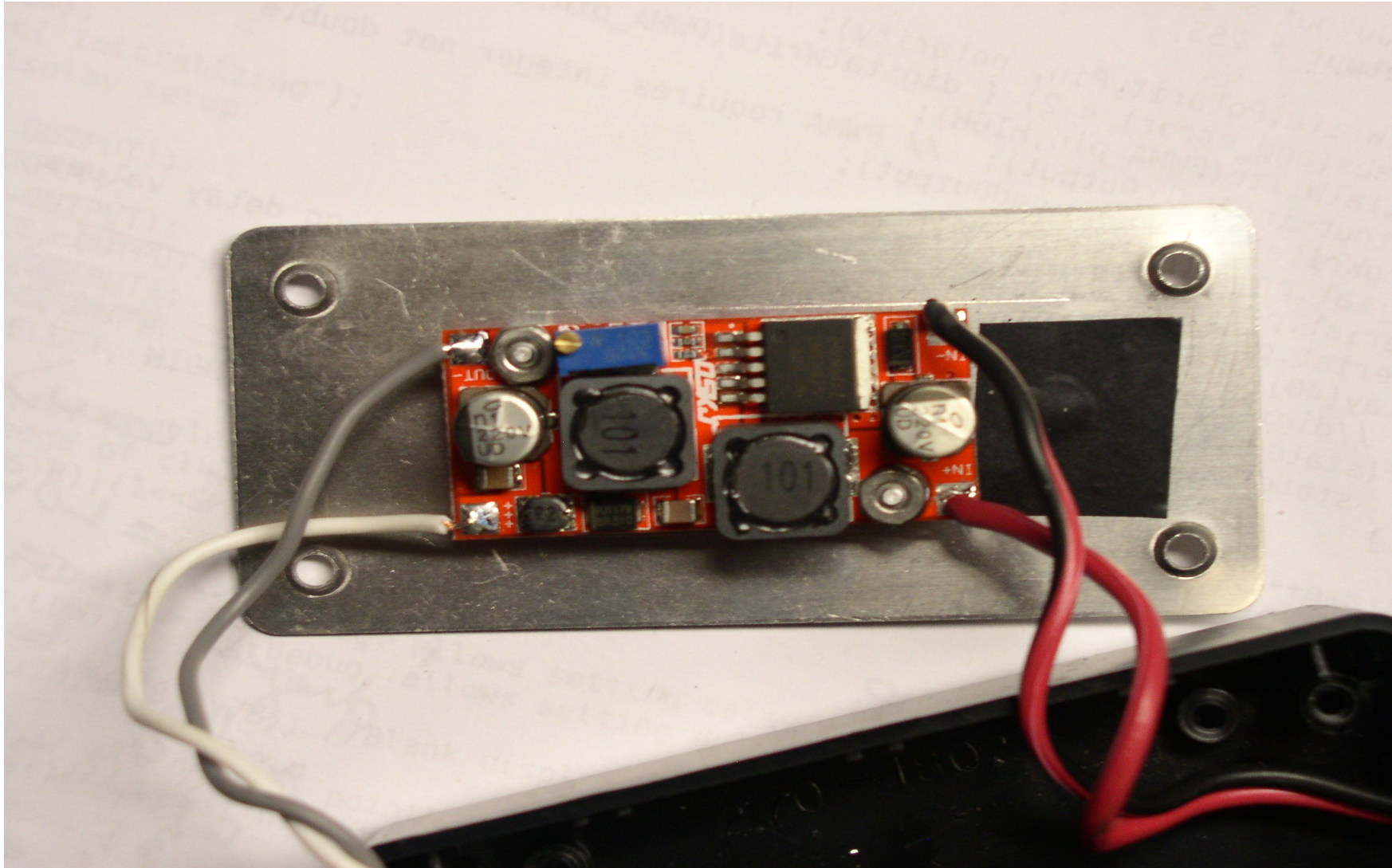


# Alternate Display Module

(2 lines/I2C interface)

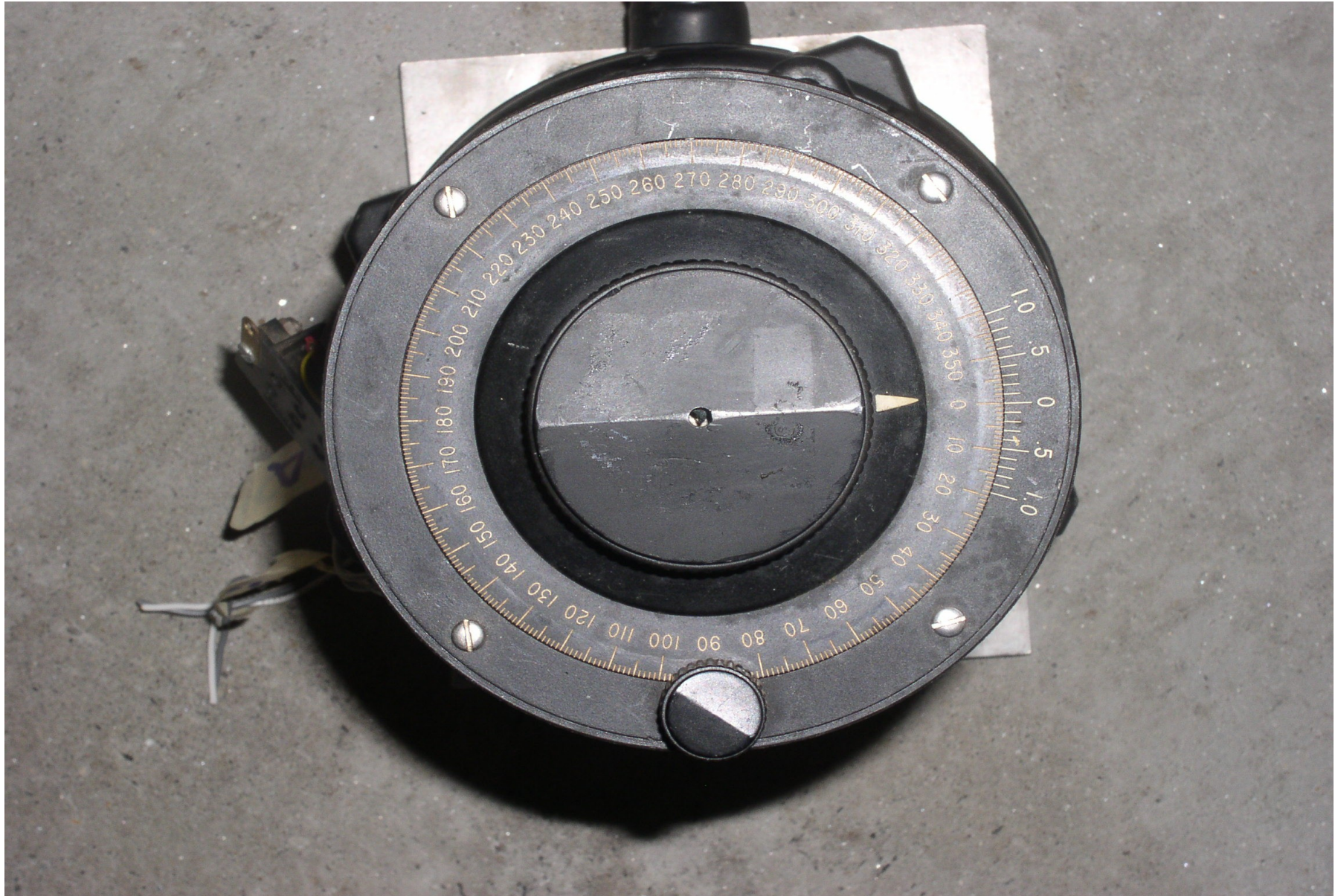


# DC/DC converter (12vdc/18vdc)





# Calibration readout





# Bench Test



# Status/Suggestions

- Not yet field tested (Try June 2013)
- If you build your own:
  - Buy/code the display before you choose a shield
  - Carefully examine shield design to eliminate or minimize cuts & jumpers
  - Be sure not to overvoltage the CPU board (cut Vin trace)
  - If you improve on my code, please share your improvements
- Watch YouTube video of Roverlog:

<http://www.youtube.com/watch?v=iLnq3FUUoS8>



# One more Alternative

K3NG has also designed an arduino rotor controller that is “feature rich”

- Designed to handle Elevation and Azimuth
- Supports GS-232A & GS-232B protocol

See:

<http://blog.radioartisan.com/k3ng-rotator-controller-code-2012032501/>