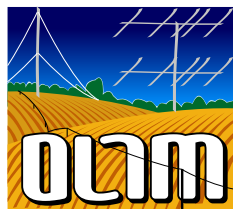




# Assembly Manual

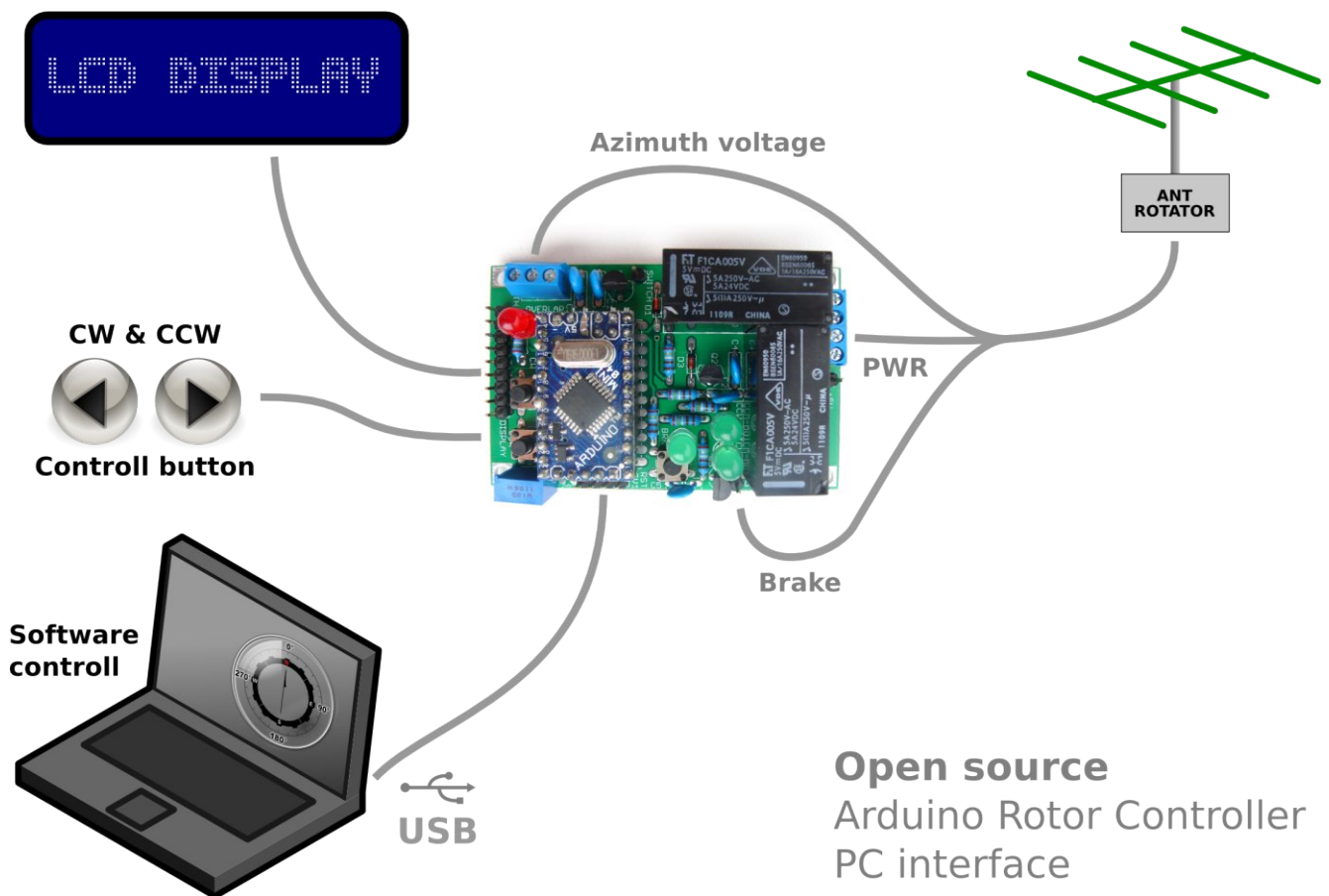
K3NG open source Arduino Rotor Controller PC interface

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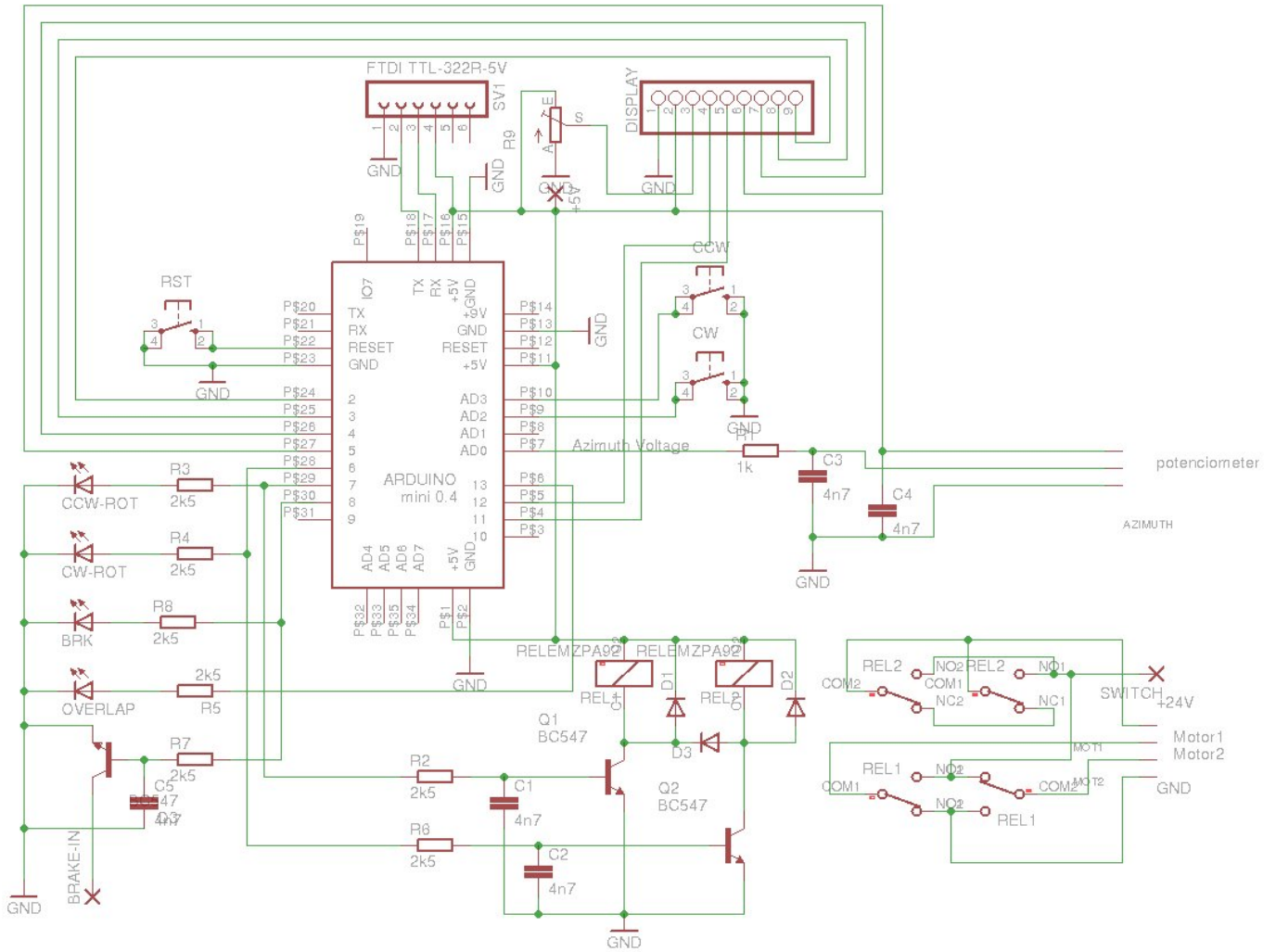


CONTEST GROUP edition | v. 1.0 August 2012 by OK1HRA | available at [www.hamshop.cz](http://www.hamshop.cz)

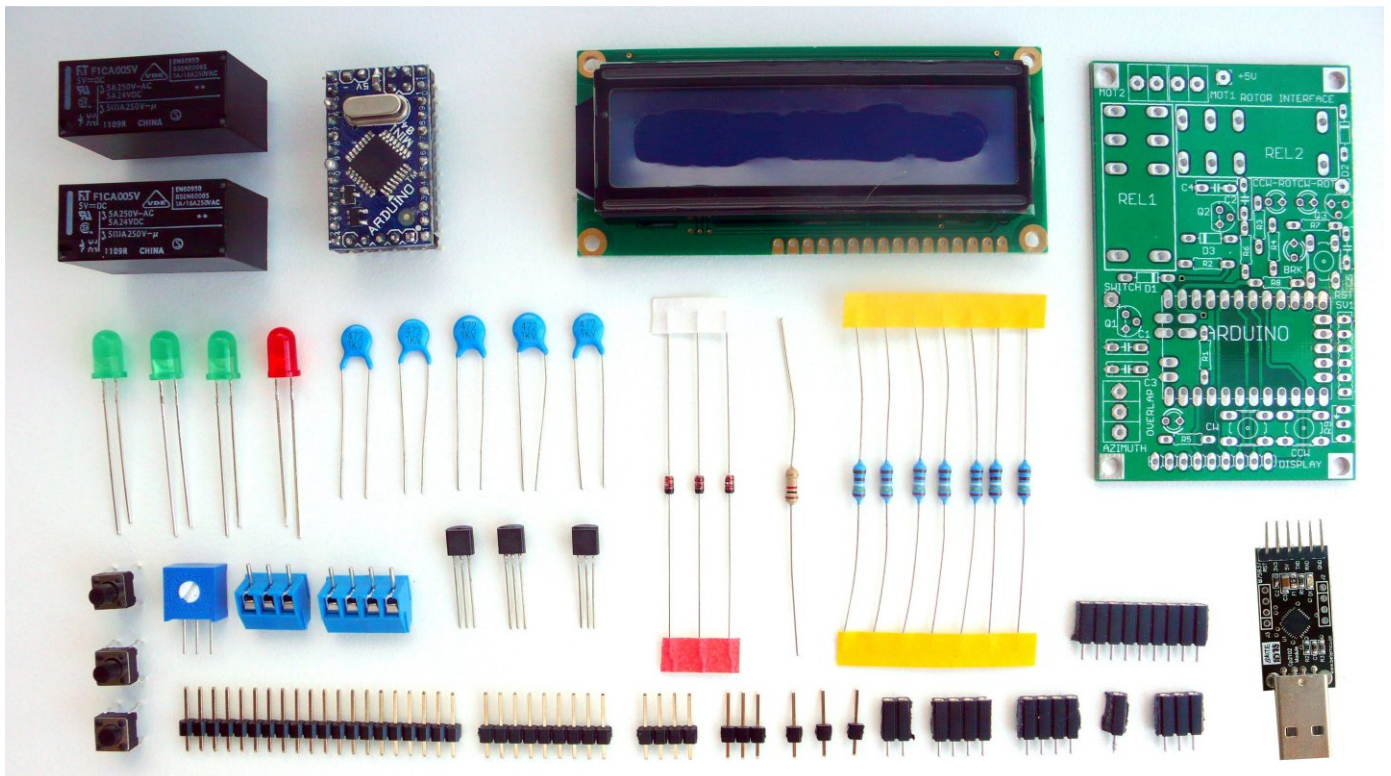
**This is an Arduino based rotator interface** that emulates the Yaesu GS-232A or GS-232B interface. It allows the rotator to be interfaced to Ham Radio Deluxe or other programs that support the Yaesu rotator command set. With the addition of a proper capacity power supply and two relays, this unit could also serve as a total replacement for a rotator control unit. It can also be interfaced with non-Yaesu rotators, including homebrew units. Firmware is Open Source by K3NG.



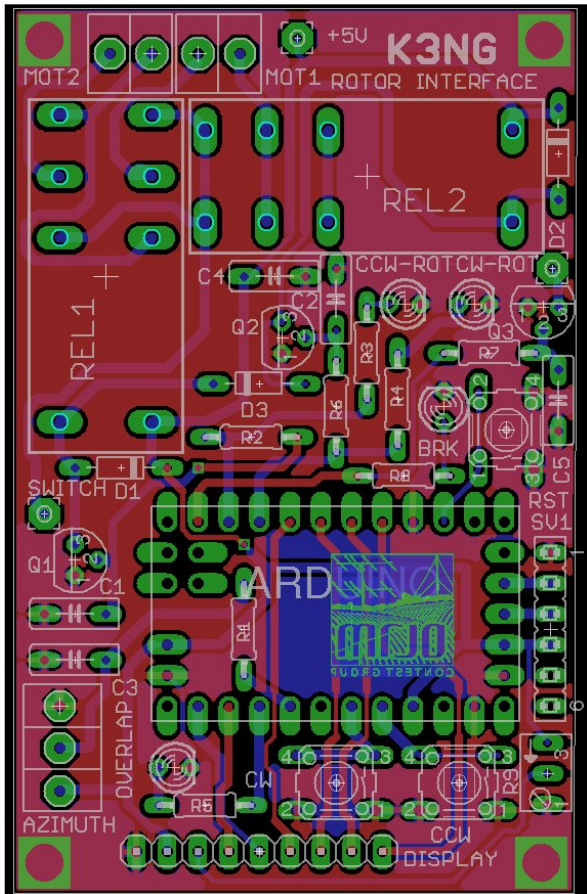
Block diagram



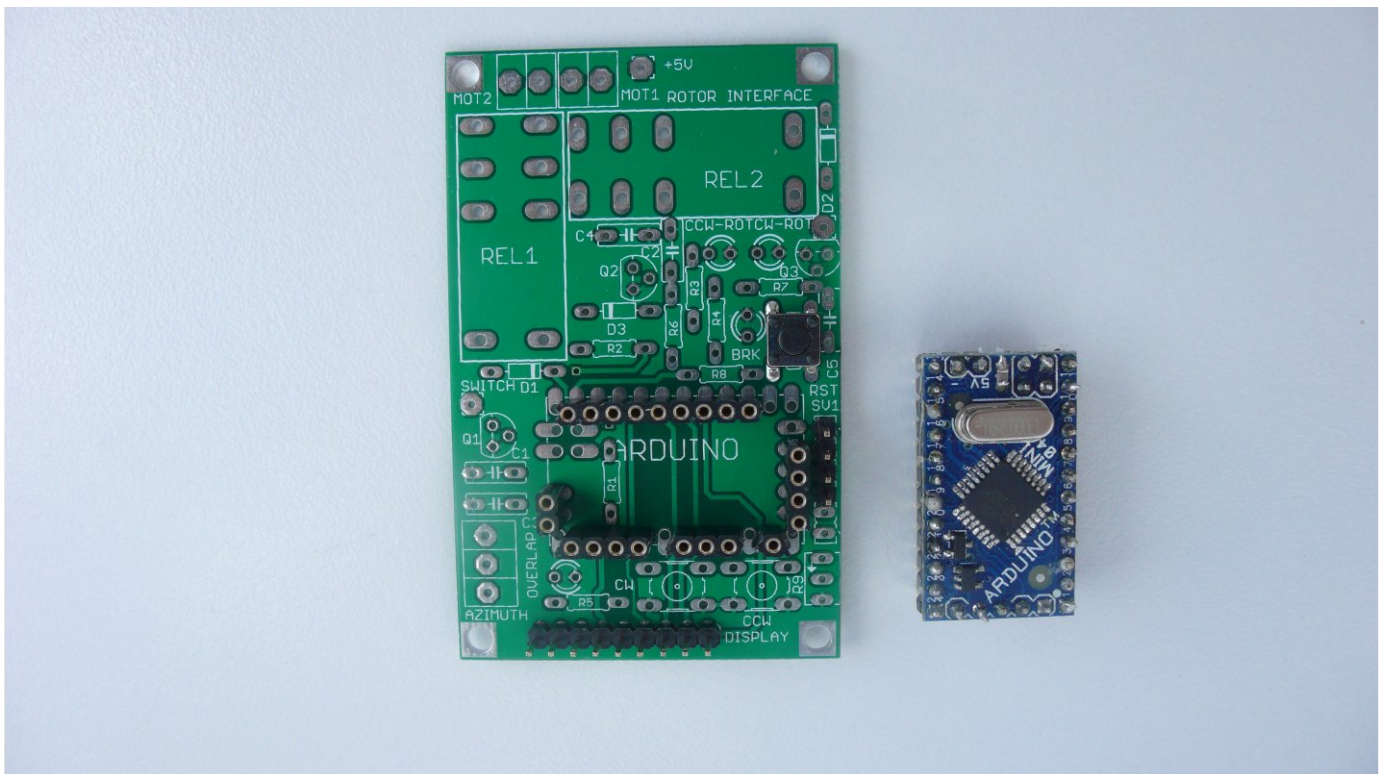
Schematic diagram



Components

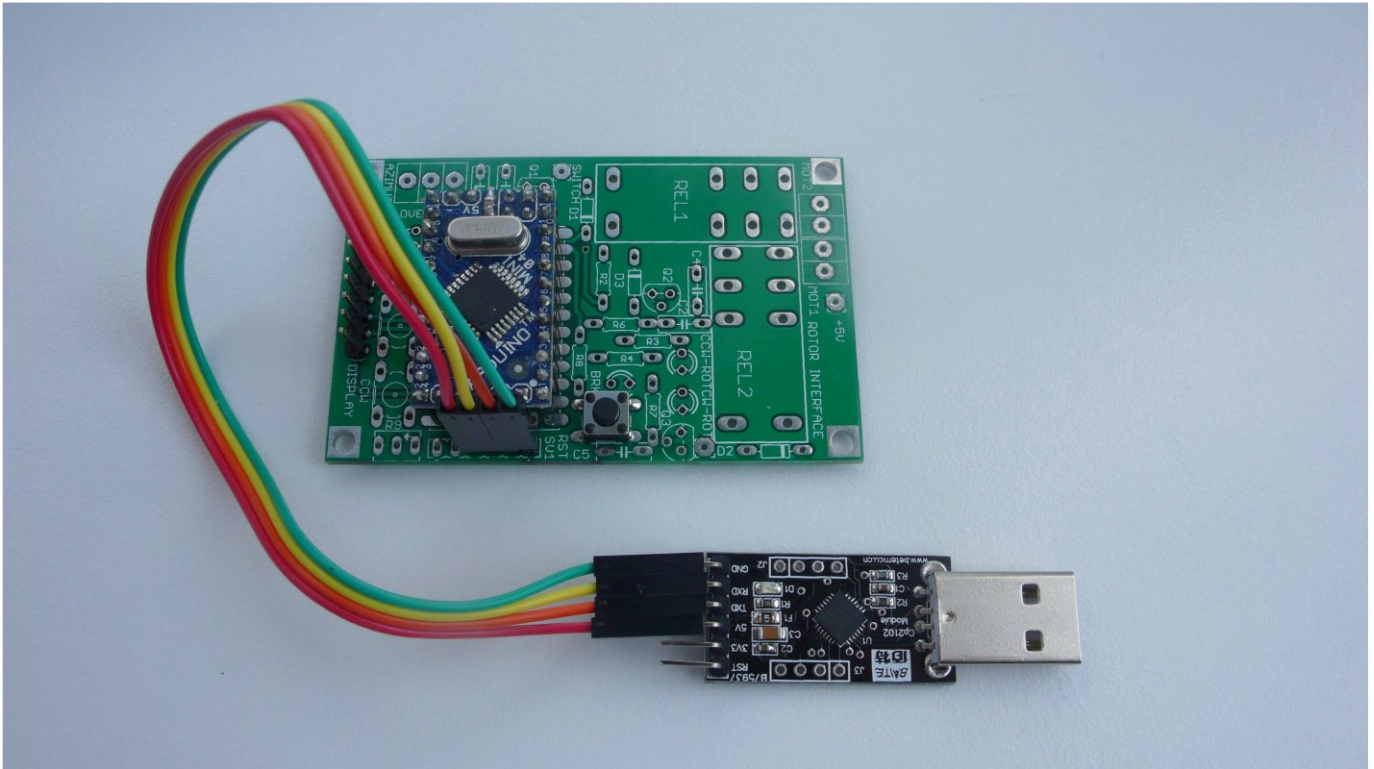


PCB



## 1. Connecting arduino mini and usb interface

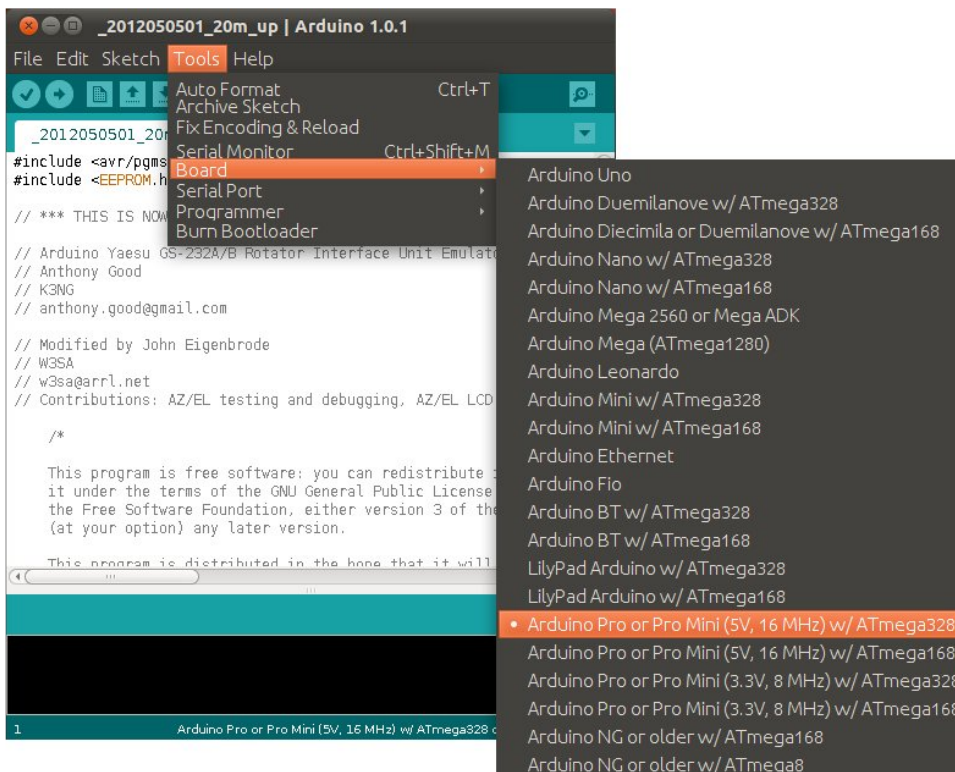
- solder pin connector for arduino mini
- four pin connector for usb
- nine pins for LCD display
- reset switch



- connect arduino mini to PCB and usb interface

Install arduino software (download from <http://arduino.cc/en/Main/Software>)

Set serial port and board type from menu Tools



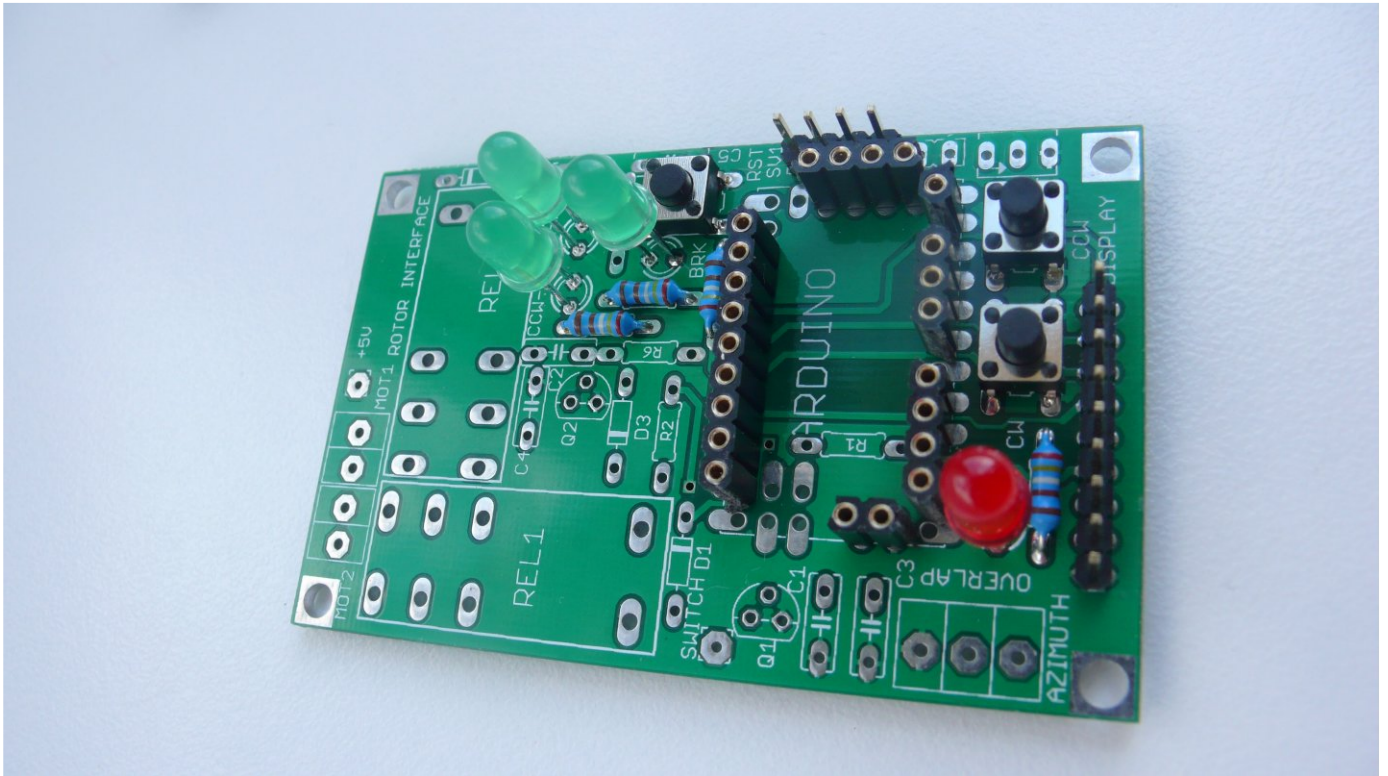
Download preset firmware from

[http://ok1hra.nagano.cz/2012\\_k3ng\\_rotor\\_controller\\_v2012050501.ino](http://ok1hra.nagano.cz/2012_k3ng_rotor_controller_v2012050501.ino) or original here

<http://radioartisan.wordpress.com/yaesu-rotator-computer-serial-interface/>

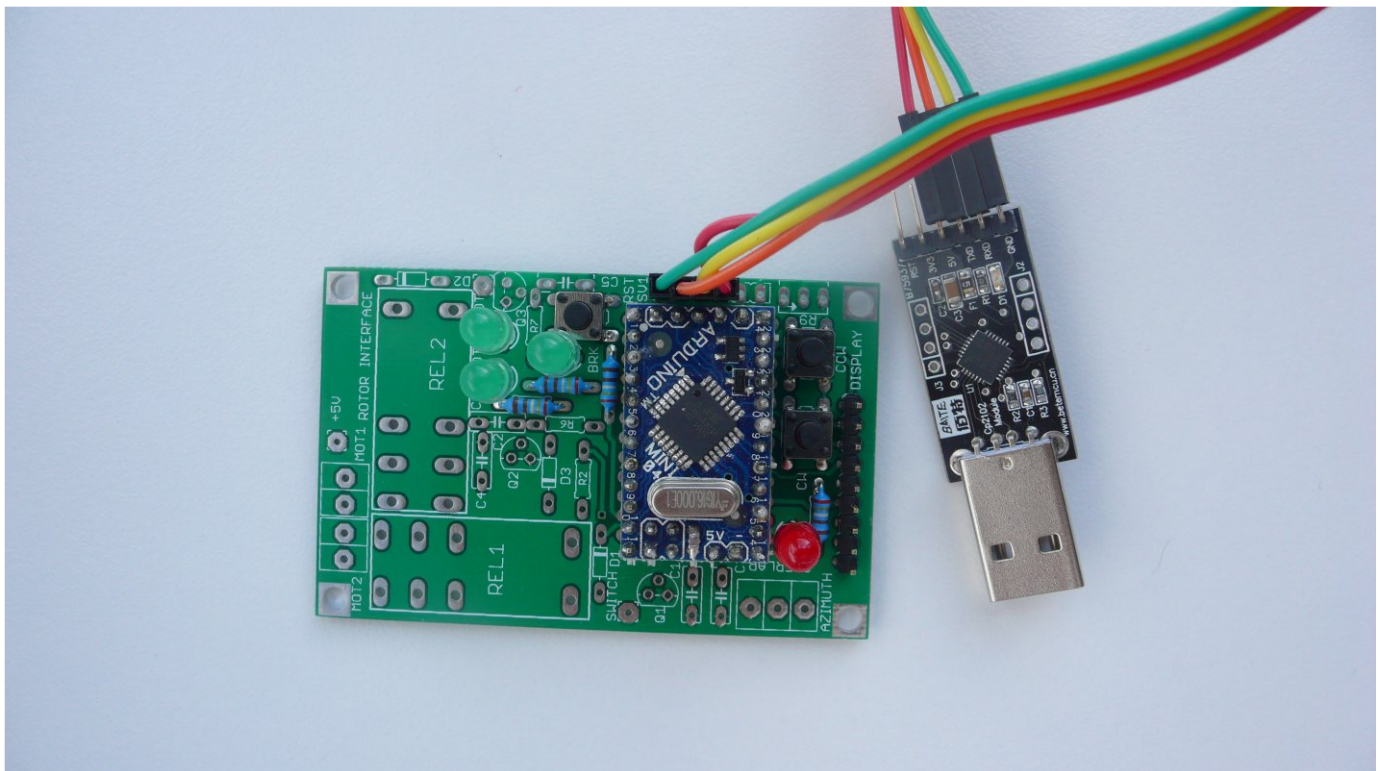
Open Sketch in arduino software. Short press reset switch and upload firmware.

- if uploading is done without errors, communication interface work well

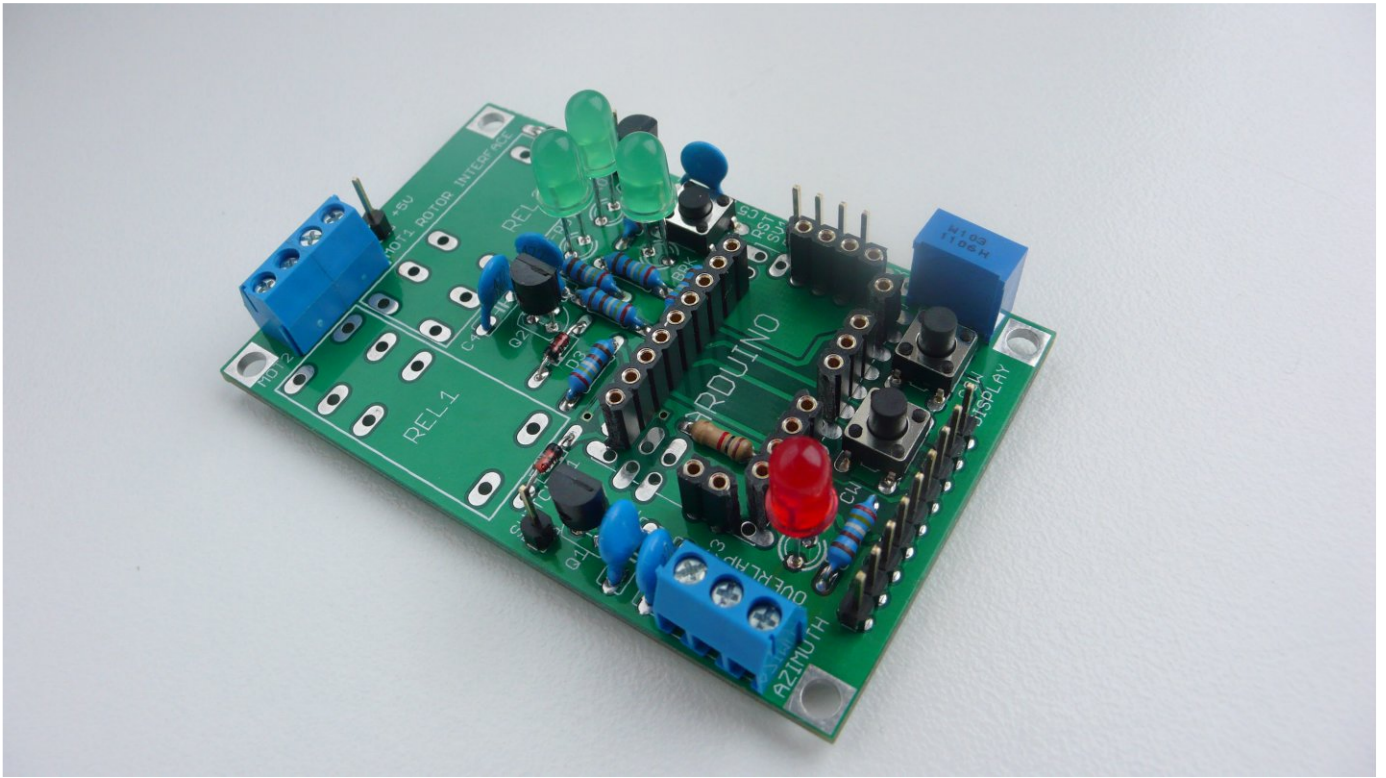


## 2. First components and test

- solder resistors R3, R4, R5, and R8
- two tact switches CW and CCW
- four LED diodes CW, CCW, BRK, OVERLAP

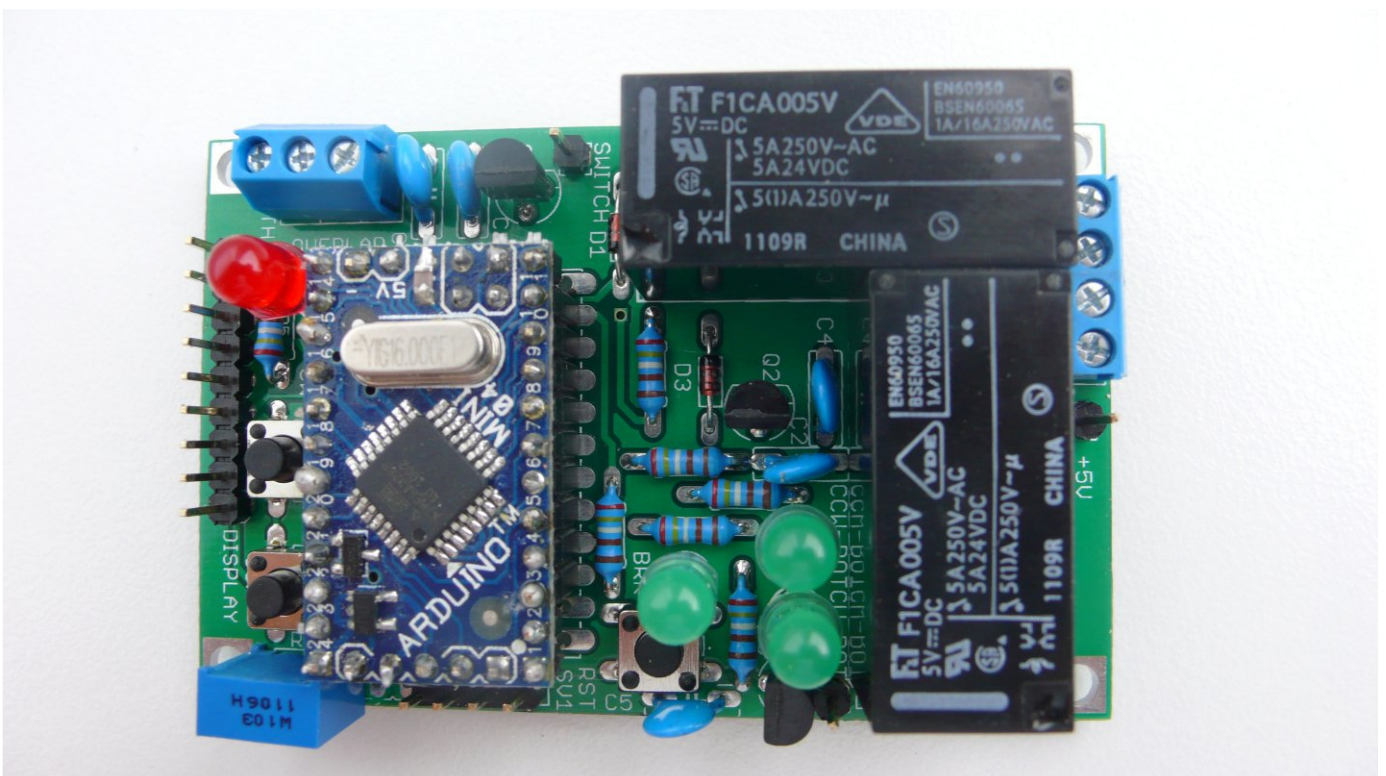


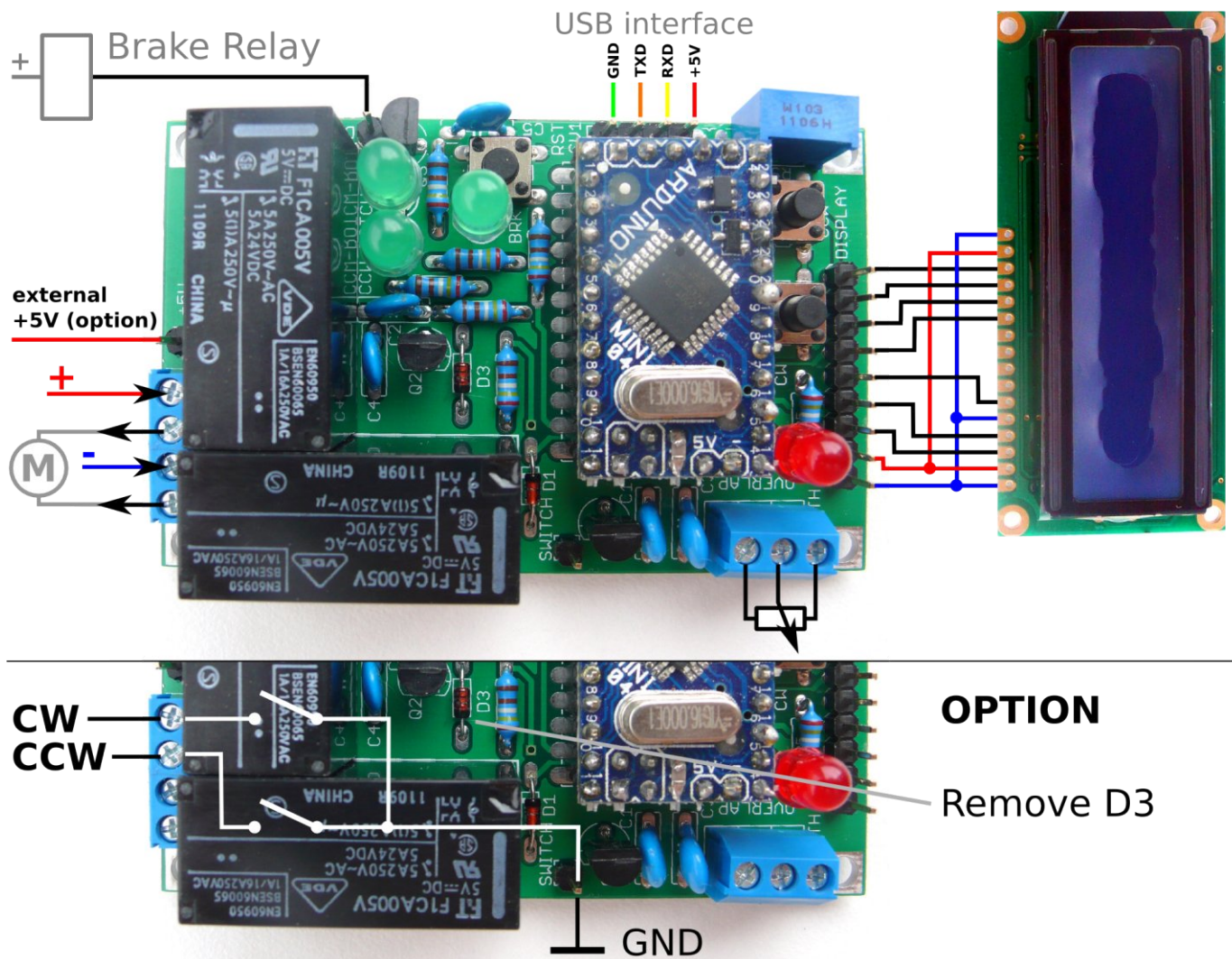
- connect arduino mini + usb interface and press CW or CCW switch if you see light from CW or CCW + BRK diode software work fine...



### 3. Finalize

- solder resistors R1, R2, R6, R7, trimer R9
- three diodes D1, D2, D3
- five capacitors C1, C2, C3, C4, C5
- three tranzistors Q1, Q2, Q3
- three single pins 5V, SWITCH, BRAKE
- two terminal AZIMUTH, MOTOR
- two relays REL1, REL2





#### 4. Connection and settings

- connect LCD display
- your rotator or potentiometer
- usb interface
  
- in arduino software select menu Tools/Serial monitor, set 9600 baud and Carriage return. Calibrate rotator by instructions in firmware source code. Find section Quick Start.
- use your favorite software or download PstRotator here [www.qsl.net/yo3dmu/index\\_Page346.htm](http://www.qsl.net/yo3dmu/index_Page346.htm)
- have fun :)



## 5. Options

- you can customize open source firmware (display text, new function, etc.)
- single pin BRAKE is available for controll brake in your rotator via relay
- pin 5V can be used for external power supply, if you like use it, disconnect 5V drom usb interface
- if you don` t need reverse polarity switching by relays, but you need separate switchs for cw and ccw, use pin SWITCH for GND and remove diode D3 This option is useful when you keep your rotor control box and this board is connected paralel to this box.
- switchs CW and CCW can be used for manual rotation, switch reset is used only for programing arduino mini

