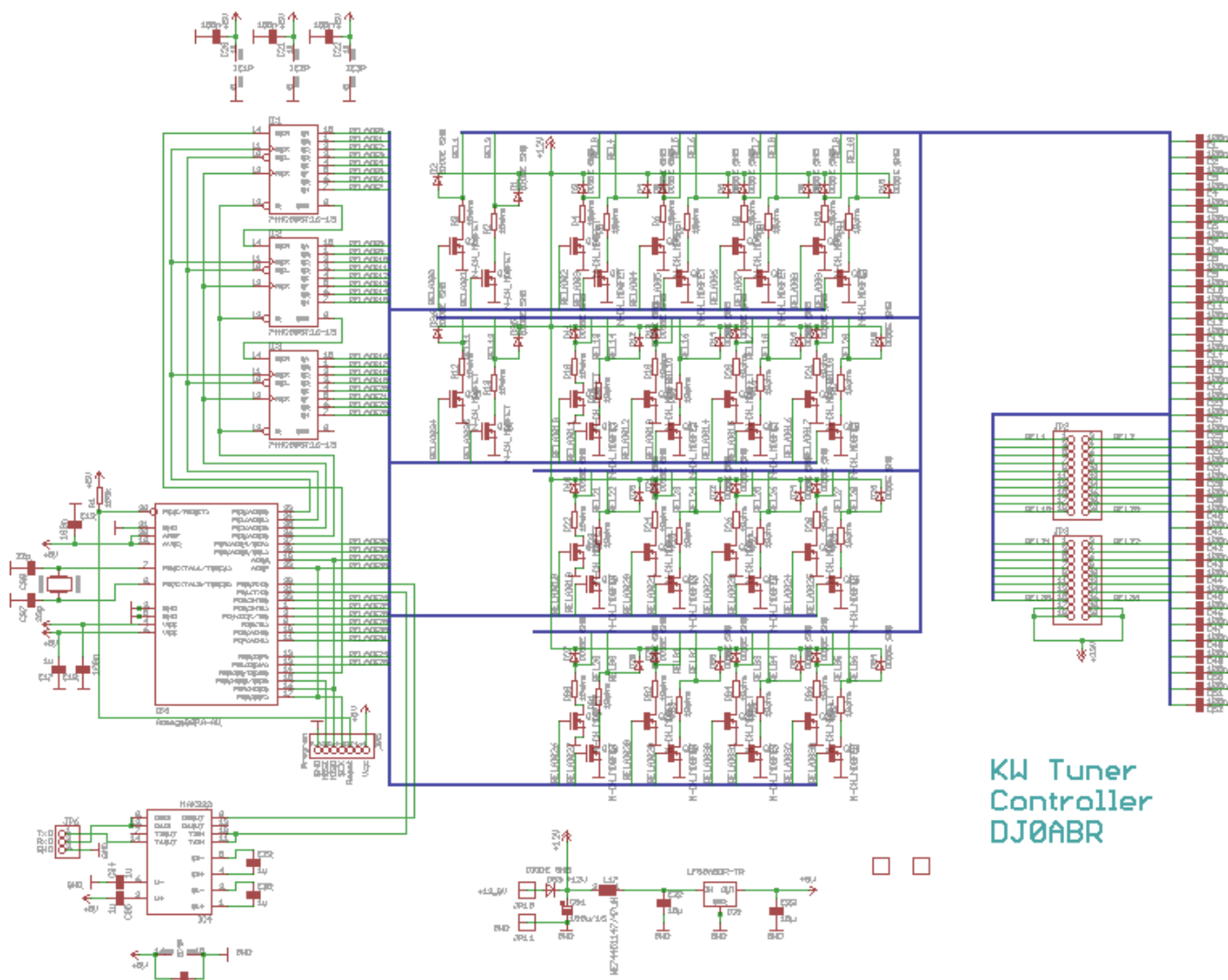


# Symmetrical (and asymmetrical) remote-controlled and affordable kilowatt KW antenna tuner

## Control board:



this board contains the switching transistors for the bistable relays. All outputs have reverse current diodes as well as an HF filter capacitor and a 10 ohm resistor to relieve the mosfets from surge currents.

The Mosfets are controlled by an Atmel microcontroller with port expansion using three shift registers.

The controller only has one task: reading a command from the serial interface and switching the corresponding relay. Example:

L11 ... switch on coil 1

L20 ... switch off coil 2

C51 ... switch on capacitor 5

C70 ... switch capacitor 7 off

H1 ... switch the capacitors to the output (H = rear)

V1 ... switch the capacitors to the input (V = front)

These commands can be sent with any serial terminal program, or with software, or with self-made programs.

The serial interface is PC compatible (+/- 12V) and has the parameters: 9600Bd, 8 data bits, 1 stop bit, no parity

## Practical experience:

A horizontal loop with a circumference of 90m was hung as a pentagon and connected to this tuner by means of a 25m chicken ladder. In addition, about 250pF and about 4uH each were switched to adapt the 40m band. The residual SWR was measured to be 1: 1.08.

A WSPR transmitter / receiver with 5W was then connected to this antenna. After a few days of operation, this arrangement achieved the world's top position for 2-way spots on 40m, with a good gap to second place.

Of course, this performance is mainly due to the antenna, but it shows that the tuner works with very little loss and makes a decent adjustment.

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Last update: **2021/03/13 01:16**

