

The Latest

Antenna Switch

Up

Posted by AG6QV Frank

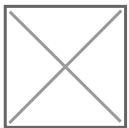
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For 2m and 70 cm bands I have horizontally polarized antennas for each band and a dual band vertical for operating on repeaters. There is also an external amplifier for each band. In order to utilize the vertical antenna I created a box that houses 3 coax relays. There is a relay for each band to switch between horizontal and vertical polarization and one relay that switches between the bands. Since this switching is done directly on the output of the radio, before the amplifiers and since the radio only transmits on one band at the time, the power handling for the relays can be limited to the power output of the radio (100W on 2m and 50W on 70cm). Standard coax relays can easily handle that amount of power.

With a 3D printed enclosure the box fits nicely on a shelf behind the radio. The image below shows the box and lid as they came out of the 3D printer.



The next image shows the components mounted inside the box. There are two RCA connectors used to control the switching of the relays (one for each band) and two LEDs to visually show which of the two bands are connected to the vertical antenna. When no LEDs are on both antennas will be connected to the horizontal beams.



The final image shows the box with the lid closed and ready to be connected to the radio, amplifiers and vertical antenna.



Controlling the relays is done through an Raspberry Pi application that also controls up to 6 HF/50MHz antennas. The logic ensures that only one HF antenna is selected at any given time and only 2m or 70cm can be connected to the vertical antenna at any given time.

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