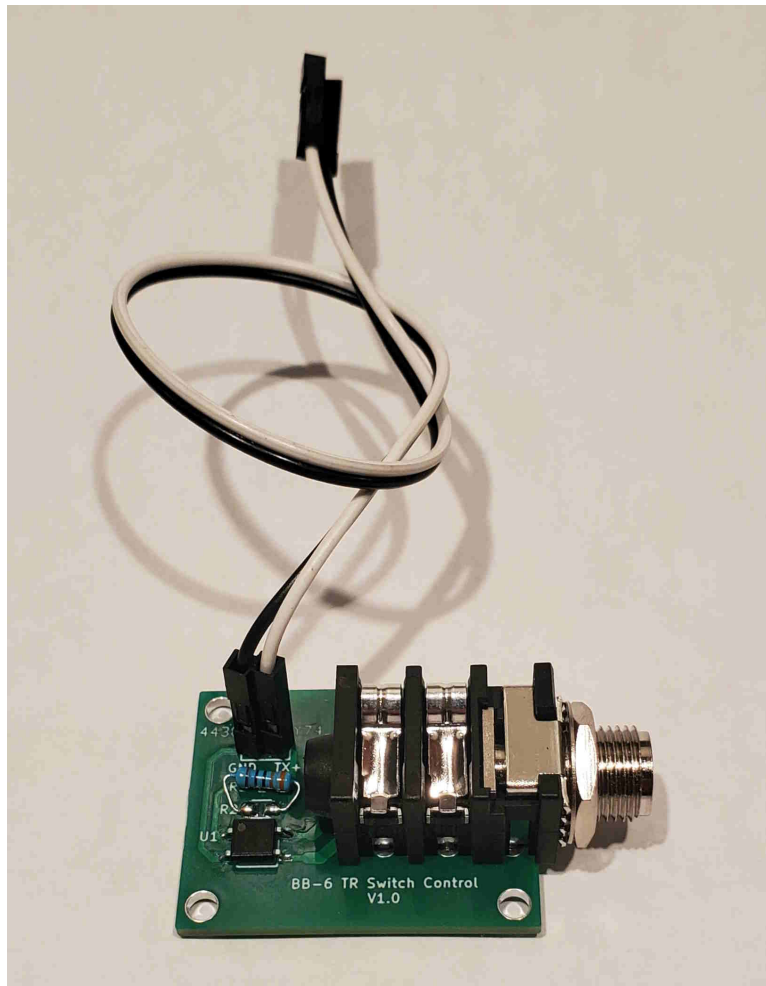# Transmit/Receive Switch Interface Adaptor
## BB-6 interface to external transmit/receive switch

If the Beacon Blaster 6 is to be used with a receiver on a shared antenna, an external Transmit/Receive switch will be required. Some T/R switches provide automatic sensing that switches modes when the transmitter starts. This can work well, especially given the relatively low-power output of the BB-6. But there are advantages to an externally-controlled switch, usually driven by the "PTT" output of the transmitter (this is often an "RCA" or phono jack.) This output is generally a contact-closure (relay or transistor) to ground, which connects during transmit.

The BB-6 T/R Switch Interface provides this control signal. **Installation will require that a 10mm (or 3/8") hole be drilled in the BB-6 rear panel, and the attached control wires be plugged onto an existing header on the BB-6 control board.**

BB-6 firmware version 2.4.0 or later is required.

Rather than using a RCA/phono jack, the interface provides a 1/4" phone jack (mono or stereo). During a transmit cycle the jack "tip" is connected to the jack "sleeve". This interface uses a solid-state switch, capable of switching +/- 60V and 350 mA. The typical T/R switch only puts 12V or less and a few mA into this interface. Phone Jack to Phono adaptor cables are widely available.
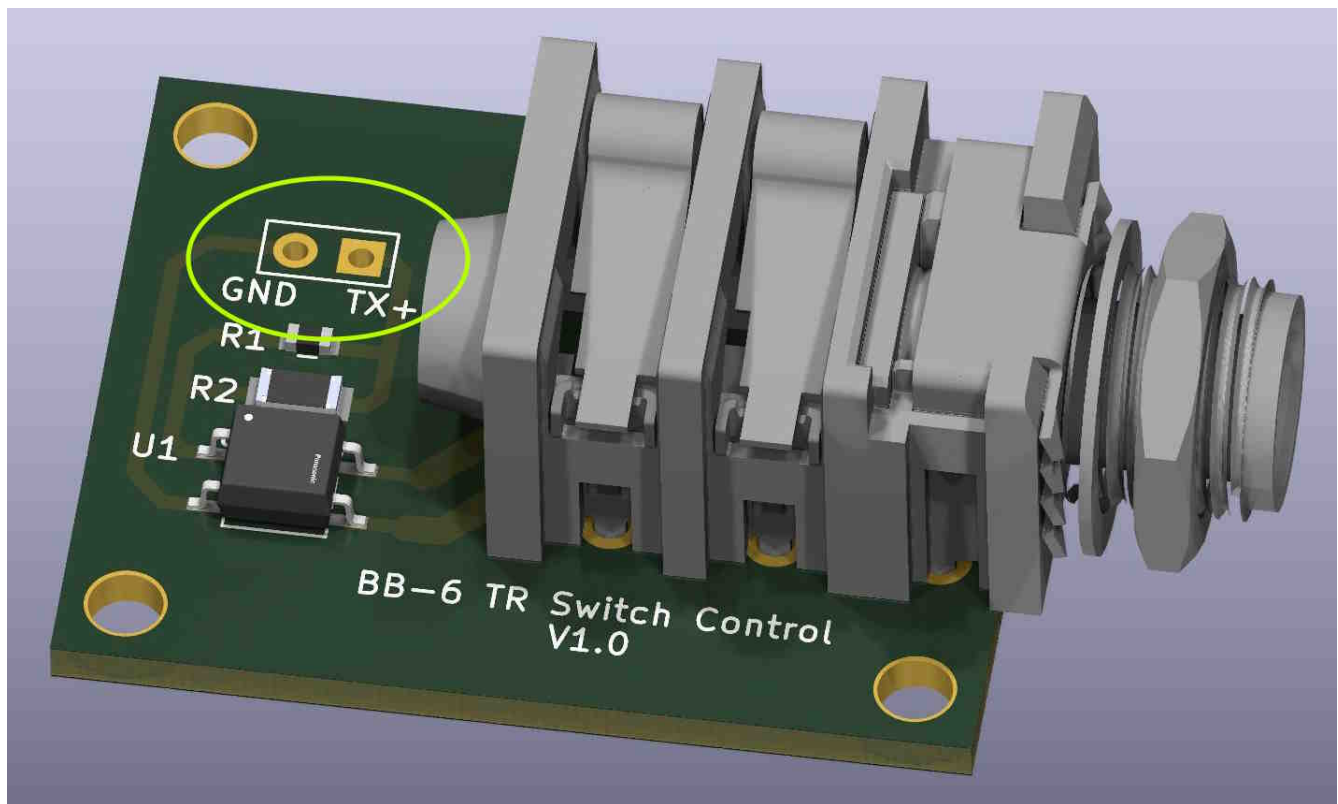
Illustration 1: BB-6 T/R Switch Control Adaptor

The adaptor may be provided with the control wires already soldered to the board, or with a pin header.
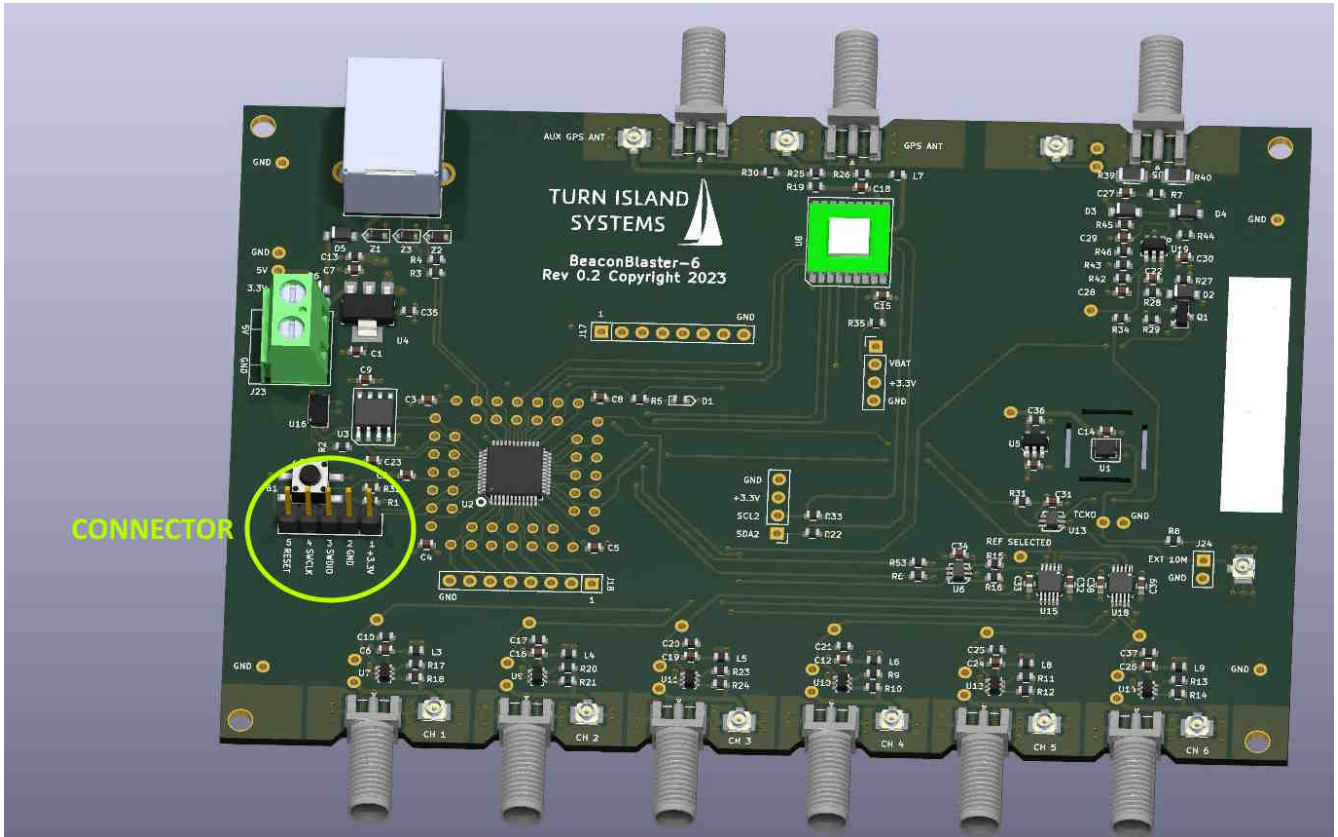
Illustration 2: BB-6 Control Board - Pin-Header for Interface Cable

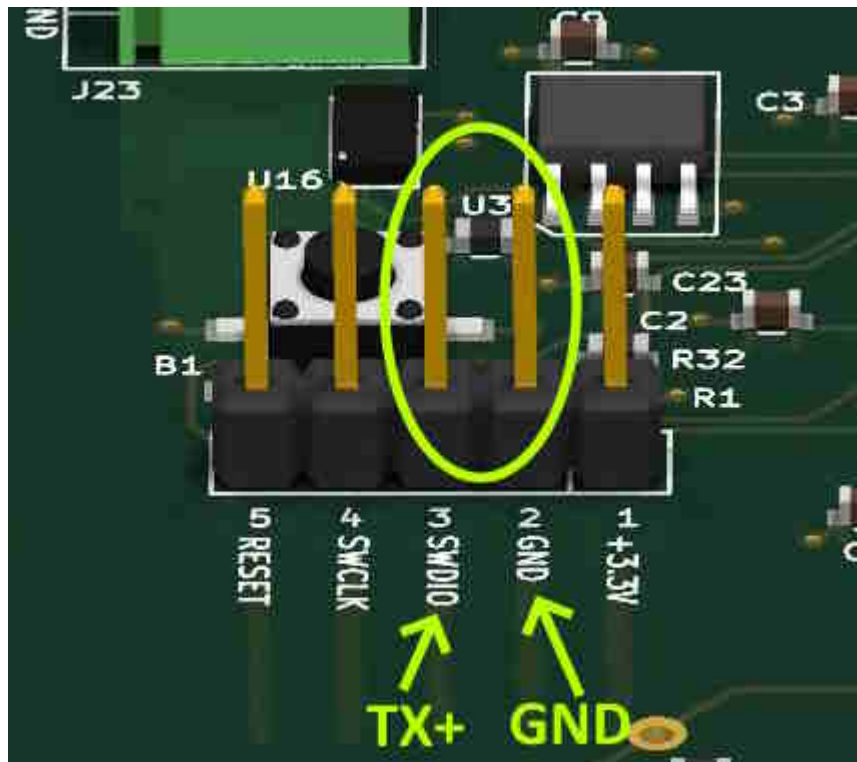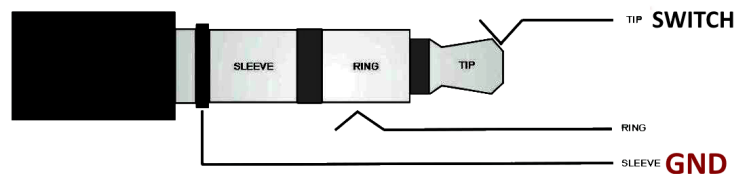The adaptor wires should be plugged onto the Control Board header (highlighted above and below).

Illustration 3: Control Board Pin Header detail

If a stereo interface cable is used there will be two RCA plugs at the far end, typically one red and the other white. Generally the white (left channel) plug is connected to the phone jack tip.

Tip: Left (white)
Ring: Right (Red)
Sleeve: (Ground)

The T/R Switch control output is open during a receive cycle, and closed during a transmit cycle. The switch state changes approximately one second prior to the start of a new WSPR/FST4W frame. Since the WSPR/FST4 transmission does not fill the entire two-minute frame, there will be several seconds of "dead time" at the end of a transmission – the switch will not change state until one second prior to the start of a new frame.
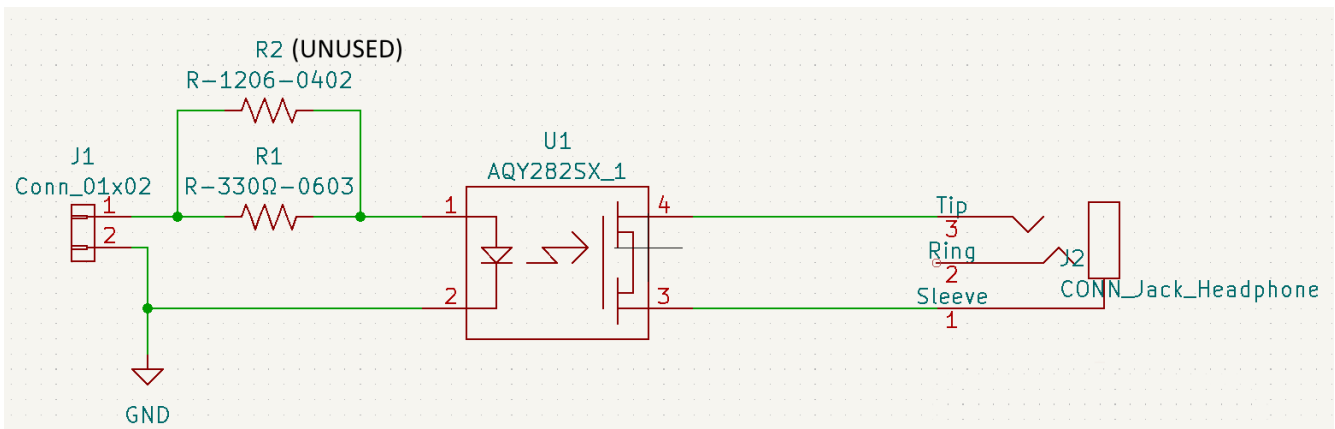
Illustration 4: Schematic