

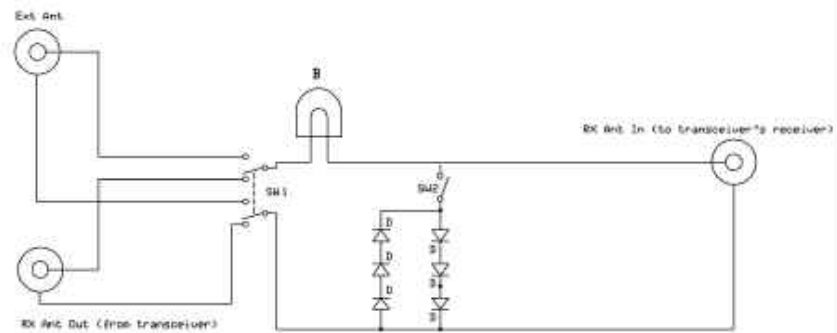
Simple Protection for the Fledgling SO2R Station

By [Pete Smith, N4ZR](#)

I recently decided to embark on a fairly ambitious station upgrade, to allow SO2R operation through sharing the antennas in my one-tower station between two radios. Knowing full well my tendency toward dumb mistakes, my biggest concern was that I would do some harm to my radios in the process of figuring out the necessary isolation measures (bandpass filters and/or stubs).

After reading George Cutsogeorge's excellent book, *Managing Interstation Interference*, available from [Inrad](#) I concluded that I was right to be concerned. Since all of my transmitting antennas are either on or supported by a single tower, I figured that I could easily exceed his recommended maximum of .05 watts power from one rig presented to the receiver of the other, particularly during setup and testing. This number is based on the use of .1 watt resistors in typical front-end attenuators, and is probably nicely conservative, but still...

After some thought, consultations on the Internet, and some exchanges with George, who was VERY helpful, I came up with a simple circuit for a radio protector that should be virtually "me-proof." The circuit, in Figure 1 below, is mostly self-explanatory. SW1 selects either an external receiving antenna or the receive antenna from the transceiver. The light bulb serves as a visual indicator of RF, will reach full brilliance well below the danger level, and will blow like a fuse if the level is much higher. The diode stack is designed to conduct at a safe level as well, and may be removed from the circuit by SW2 to avoid any possible intermodulation problems, once the SO2R setup is debugged. I built mine in plastic Radio Shack enclosures, with big paddle-type DPDT toggle switches as SW1. In this receiving application, any losses due to mismatches should be negligible.



B 1.5v 60mA pilot lamp or #49 2.0 volt 60 ma.

D 1N4148 or 1N914B fast switching diode

SW1 DPDT toggle

SW2 SPST toggle

S02R Receiver Protector

N4ZR

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