

Switch Gizzie

Using a Modem AND a Soundcard

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Joe Wittmer, KB9SIZ, and Ron, K5DJ, inspired this little piece. Here's something to do this winter - when the bands are dead. Several popular programs for RTTY now support a sound card as well as a modem. WriteLog does this and it's handy. Use the DXP38 for RTTY, AMTOR, Pactor, and CLOVER - and then use the sound card for PSK31, CW, and whatever else you may want to test. When you "click" on the modem or sound card, the software changes ports and gets the right commands to the chosen device. BUT, you still have to change cables or throw a switch to hook the desired modem to your radio. I discussed switch boxes and patch panels last year (August and November, 1998 RJ) but Joe said "can't we do this automatically?" Sure can, and here is one way to do it.

This circuit is for a modem and a sound card but the idea can be used for 2, 3 or more modems and sound cards. There are two assumptions in this design: (1) both modems are connected in parallel to receive, and (2) PTT activity selects which modem is hooked

to the radio to transmit. Since the modem and sound card are always connected to the receiver, you can use tuning indicators of either and even demodulate from both at once (if your software supports it). But, we have to avoid a situation where the modem and sound card might interfere with each other - or even try to transmit at the same time.

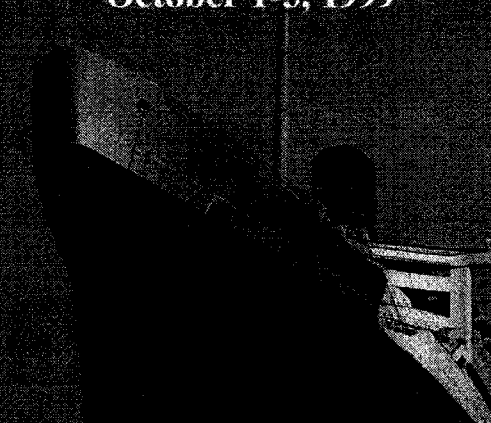
The circuit is very simple. I've used plain old "vanilla" relays to do the switching - keep it simple and reliable. A minimum of 3 sets of relay contacts (poles) are required for each modem - TX Audio, TX FSK, and PTT. Since my Radio Shack relays have four poles, I've used the 4th set of contacts to interlock relay control so that only one or the other can be on at a time. Like my previous switch boxes, this gadget uses phono connectors for practically everything - except - sound card audio in and out. Sound cards typically use those little 1/8" stereo phone jacks and you might as well use the same jack on the switch box. There seems to be pretty uniform agreement that sound card modem programs use RTS (Request To

Send) from a serial port to control PTT and TXD (Transmit Data) to drive the transceiver's FSK input. Diagrams of cables to match DB25 and DE9 connections are also shown. The parts can be found in your junk box, at a swap-meet or your local parts store. Radio Shack part numbers are shown for each part but substitute freely.

I've include potentiometer R3 on the sound card audio output. This lets you have an adjustment beyond the software. As I mentioned in a previous article (June 1999 RJ, p. 10), set the software audio output level of the sound card to a pretty high level and then crank-down R3 to get the correct drive to your transmitter. This will minimize "birdies" from the sound card as well as giving maximum signal-to-noise at the transmitter input. Capacitor C1 may not be needed but some transceivers have DC on the mic. audio input. As we say - "better safe than sorry". Ron, K5DJ, recommends audio isolation transformers for audio in and audio out connections to your transceiver. It's a good idea but these connections often work OK without transformers. If you have 12 VDC already available in the shack, you won't need the batteries. This only draws current when transmitting - and only 66mA at that. I'd expect that a set of AA cells would make it through a couple of contests.

HAVE FUN!
de K9GWT

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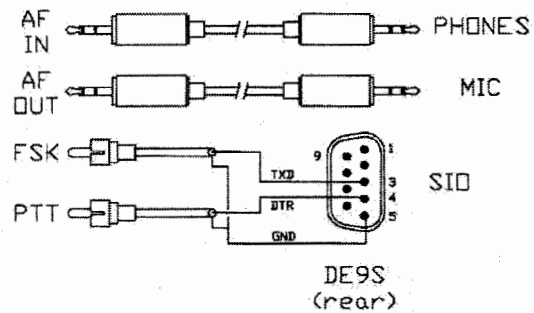
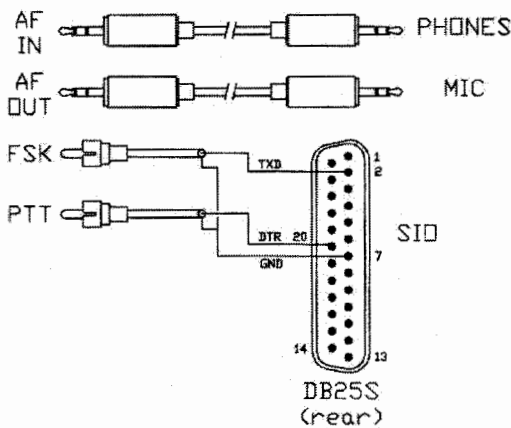
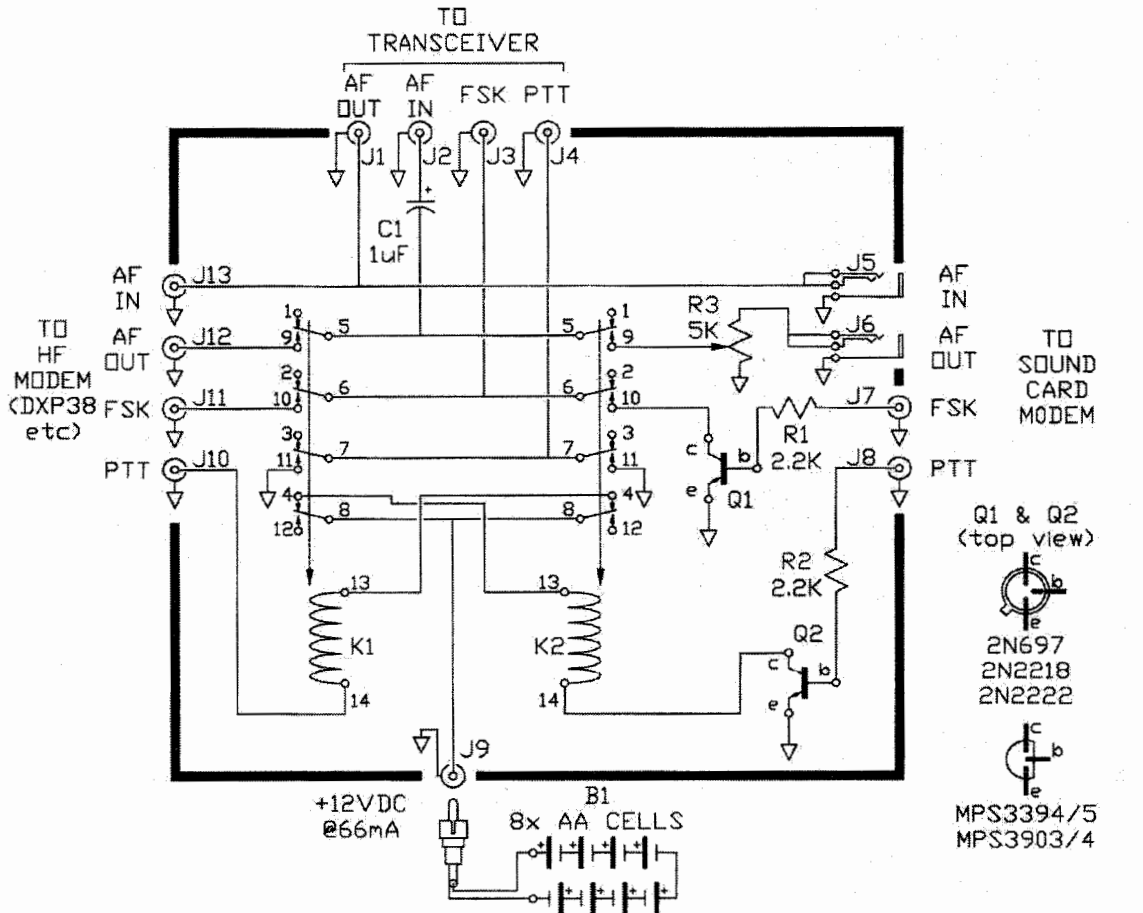
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Switch Gizzie PARTS LIST

B1	12 VDC Battery; 8xAA Holder (270-387 w. 270-325 cable)	K1, K2	4PDT Relay, 12 VDC coil (27-214)
C1	1uF, 25V Tantalum Capacitor (272-1434)	Q1, Q2	NPN Transistor, 2N697, 2N228, 2N3394/5, 2N3904/5, etc. (276-2016)
J1-J4	Chassis Mount Phono Sockets (274-346; pk of 4)	R1, R2	2.2K, 5%, 1/4W Carbon or Film Resistor (271-1325)
J5, J6	Chassis Mount 1/8" (274-246)	R3	5K Potentiometer (271-1714)
J7-J13	Chassis Mount Phono Sockets (274-346; 2x pk of 4)	Cabinet	Project box 6x4x2 (270-1806)