

# TECHNICAL CORRESPONDENCE

**OUR PSK31 SIGNAL**  
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's article "PSK31 2000" in  
 0 issue of *QST* brought an  
 PSK activity on 20 meters  
 degree on 15 and 10 as well.  
 y, there are a lot of dirty PSK  
 ause interference and reduce  
 bandwidth for other stations  
 use to such a signal. In one  
 w a signal so bad that it was  
 in three different places on  
 anoramic display—loud and  
 hree spots! Here's some in-  
 've collected that can help  
 erty PSK signal.

irst started operating PSK31  
 00, I built an interface that  
 relation transformers and po-  
 ; to adjust the transmit and re-  
 ; between the radio and my  
 nmitted signal was terrible!  
 wer-output level of 2 W, sig-  
 I received were very bad: a  
 with sidebands several hun-  
 way from the main carrier and  
 -indicated IMD of no better

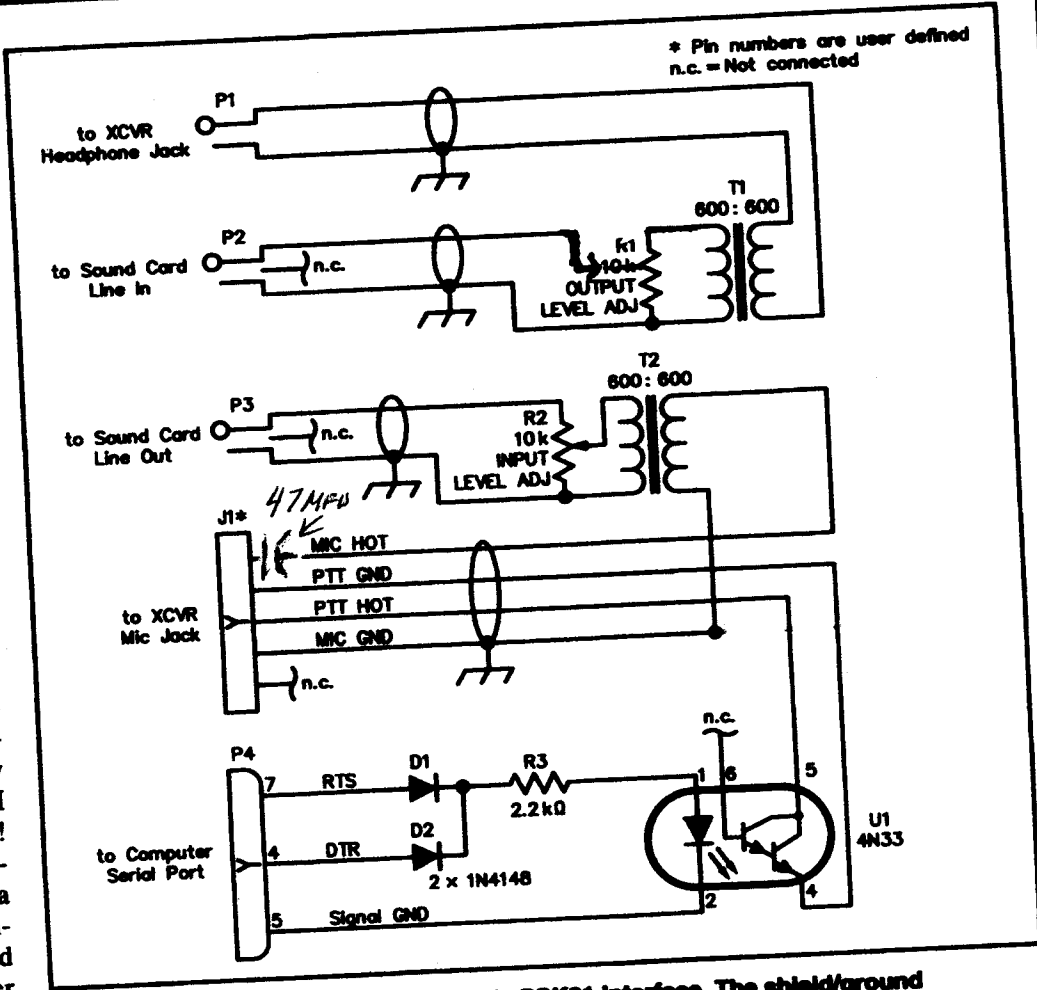


Figure 1—Schematic of K8CAV's generic PSK31 interface. The shield/ground connections shown for P1 through P3 and J1 are isolated from the metal cabinet and each other. Pin numbers are not shown for J1 as they are user selectable.

J1—Five-pin panel-mount DIN connector  
 P1—Two-circuit, 1/4-inch phone jack  
 P2, P3—Three-circuit, 1/4-inch phone jack  
 P4—DB9 connector/cable assembly  
 R1, R2—10-kΩ panel-mount pot, audio taper (RS 271-1721) or linear taper (RS 271-1715)  
 T1, T2—600 Ω, 1:1 isolation transformer (RS 273-1374)  
 U1—4N33 or 4N32 optoisolator (RSU 11567963)

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**wb8hhz**

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**From:** <Major107AC@aol.com>  
**To:** <wb8hhz@arrl.net>  
**Sent:** Thursday, February 22, 2001 4:48 PM  
**Subject:** Re: Query on interface article

George,

There were several errors in the article, some of them mine and some of them QST's. Below is a summary of all the mistakes, sure hope it helps. And if you have any other questions, please don't hesitate to call!!

There are several items that need to be addresses about the interface box as it was published in QST Magazine. The first and most obvious is that the potentiometer R1 is wired incorrectly. Very definitely my mistake, I was looking at it through the wrong port when I designed it. The correct wiring should be with the wiper connection of the potentiometer connected to the sound card in center conductor of the cable assembly and the "hot" end of the potentiometer connected to the transformer.

The next item concerns grounding. Unfortunately the schematic was not published exactly as it was submitted and the grounds that are shown in the published schematic are misleading. Paul addressed the grounding issue in the note accompanying Figure 1 in the article but even there, part of it is misstated. The caption should have stated "The shield/ground connections shown for P2 through P4 are isolated from the metal cabinet and each other." If this is followed, then the sound card and computer is effectively isolated from the radio equipment and no ground loop problems will occur. The grounding shown for P1 and J1 is correct, unless the ground/common in the radio for the microphone and headphone are not the same in which case the ground/common for P1 should be isolated.

If the interface box is being used to feed the microphone connector on the radio, the user needs to be aware of a couple of items that may need to be addressed. The first is that some radios (such as the Kenwood TS-570) use a different "common" for the mic audio and the PTT functions. The schematic as shown will accommodate the separate commons. If the same common is used for the mic audio and PTT, simply jumper these two pins on J1. The next item is that some radios have a DC bias in the mic hot pin to power mic audio circuits. Placing a capacitor between center conductor of P3 and the "hot" end of the potentiometer will eliminate any problems a DC path might cause. Without knowing the impedances involved, it's difficult to specify a "correct" value for this capacitor but a couple of quick calculations showed that a 47 uf capacitor should be large enough for all radios.

One reader suggested using a 4N35 phototransister instead of the 4N33 photodarlington that was specified as the Vce SAT is lower. There's no reason that it shouldn't work although I haven't actually tried it in my circuit yet. The 4N35 is pin for pin compatible with the 4N33.

Thanks again for your comments and interst in my artical George!

Rick K8CAV

3/23/01