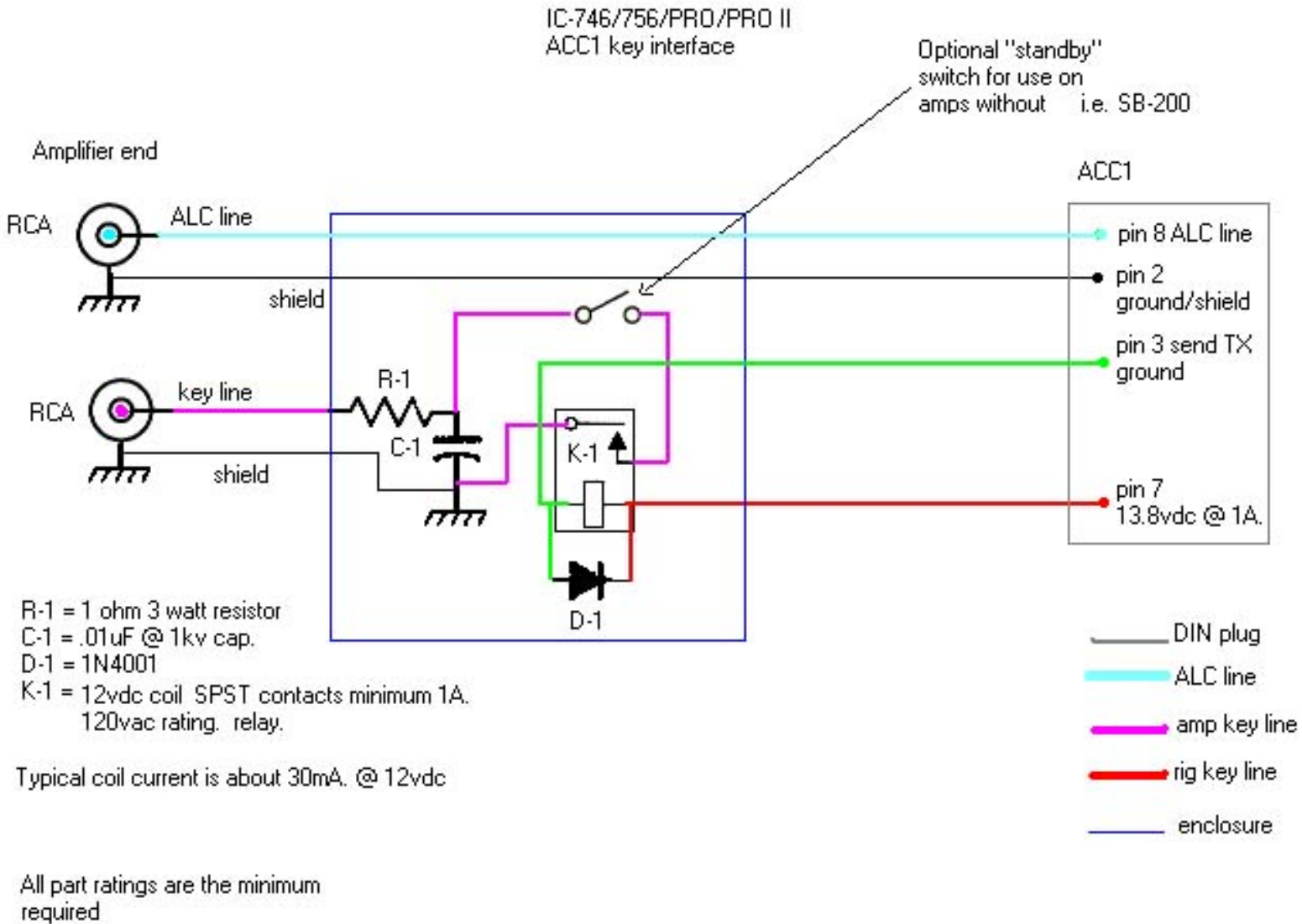


Amplifier keying circuits for ICOM HF radios.



See your radio operators manual, for DIN plug pin-out for this interface.

Note: Use a relay that draws no more than 200ma. of current. Do not use relays that are larger than 10A. contacts, because the noise of the contact closure becomes quite loud.

The cable between the interface and rig is a three conductor, shielded type.

The lines between the interface and the amplifier are separate and shielded.

R-1 is a current limiting resistor which controls the keying in-rush current level.

D-1, is a back-pulse canceling diode, protecting the delicate circuit in the rig.

C-1, is an RF bypass.

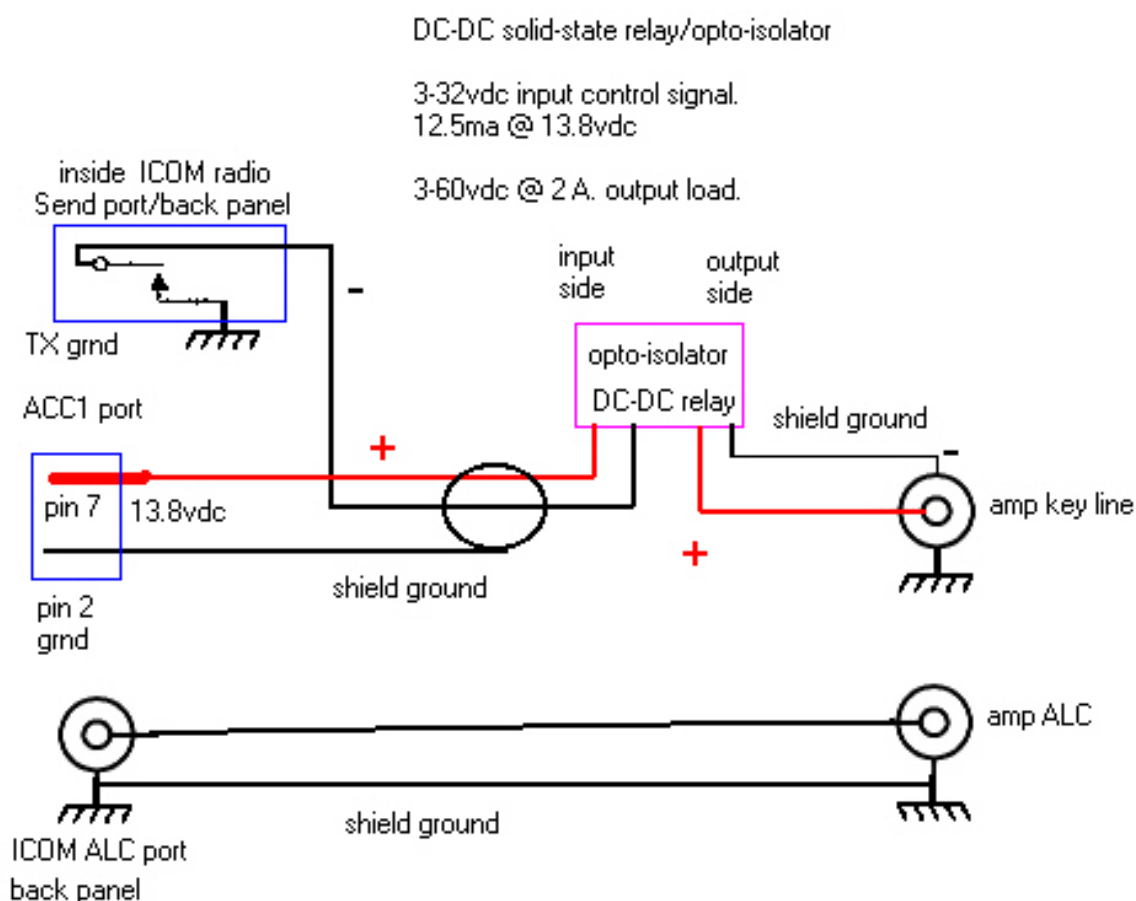
Wired in this manner, the circuit isolates the amp from the rig, sharing only a common ground.

This circuit can be adapted to many radios, by rewiring the DIN plug end(consult the manual of the radio for pin out).

Feel free to copy and build this circuit.

If you would like a completely solid state interface, I have constructed a unit around a small solid state DC-DC relay, or "Opto-isolator", from [Jameco](#), which costs about \$10 for the relay. Jameco part number is; 172591 \$9.95 each.

Below is a circuit diagram of the unit.



The advantage of using this design, is that the relay is very, very fast, and totally silent.

Cost is about 50% higher than a mechanical relay design.

The interface is very small, about the size of two postage stamps side-by-side.

Complete isolation of the amp and radio, except for the common shield/ground of the ALC line which is paired with the keying line. The relay is completely self protected internally.

This circuit is NOT suitable for use on amps that use higher than 60vdc, i.e. SB-200,220, these are better suited for a mechanical relay circuit.

Another optional circuit with less parts and much lower cost, and greater ease of construction [look at this page](#). However NOT suited to all applications.

73 de Matt KK5DR

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Amplifier keying line "Damper".

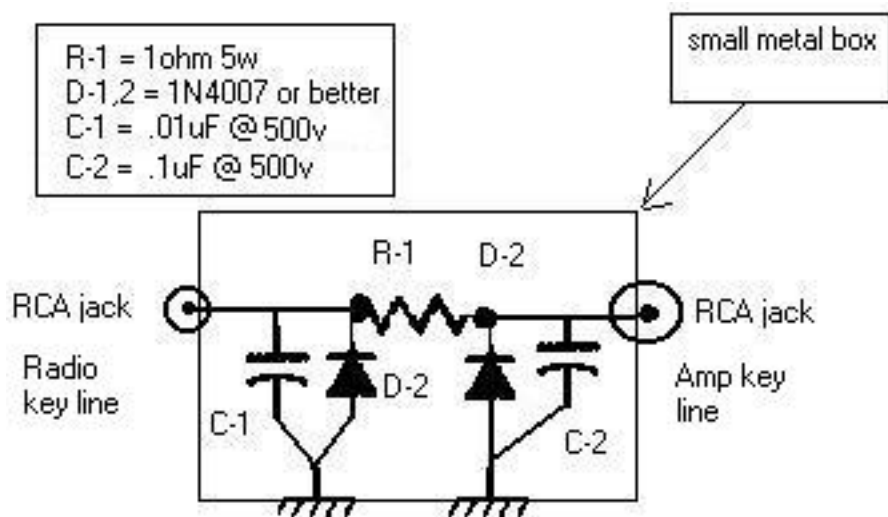


Fig. 1

The schematic above is an Amplifier keying line "back-pulse" damper. The resistor limits current both "in-rush" and steady-state type. The diodes are for "back-pulse" canceling, the reason for two diodes, is that it would be very unlikely for both to fail, so there would always be protection. The Ceramic disk capacitors are for "RF by-pass" should any RF appear on the keying line, these caps should by-pass it to ground, before it arcs the relay contacts, or cause other RF feed-back problems. Also, the .1uF cap absorbs a small portion of a voltage surge before it reaches the resistor.

The Small metal box shields the circuit and gives a mounting point for the RCA jacks.

The C-2 end of the unit should be placed in the amp key line, C-1 should go to the rig key line.

Feel free to copy this drawing and build your own.

The circuit has been built by me and tested up to 24vdc @ 150mA. with an ICOM rig.

It should work well up to 1Amp. of current.

However, if you are using an ICOM rig with it, do NOT exceed 16vdc @ 0.5Amps. I have used the damper with 24vdc @ 150mA. but I would not go any higher than that. If you have an amp with a 12vdc keying line, and below 500mA current, this key-line damper should work well and give the rig a minimum level of keying relay protection. For amps that exceed the voltage/current levels here, use the interface relay on my other [keying page](#). These will give the maximum level of protection.

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