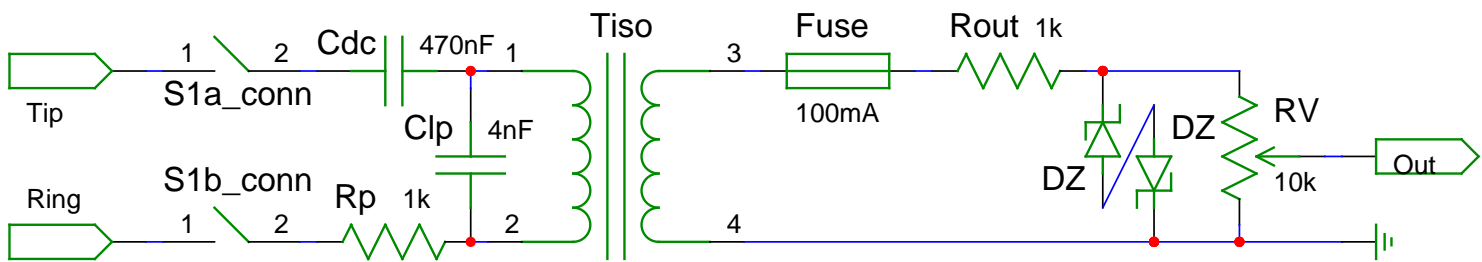


Land Line Telephone Tap

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This is a circuit for a land line telephone tap directly from the wall outlet suitable for a recorder.

If properly wired, Tip is green, Ring is red. Most reversals probably won't matter much.

S1 is DPST and is used to physically disconnect the circuit from the wall outlet. A SPST could be used only on one leg, but in theory the way shown is safer. Ideally the switch should be rated high enough for nearby lightning strikes.

Cdc blocks the DC voltage coming from the phone service. It should be rated for at least 250v, preferably 400v.

Clp is an optional low pass filter to chop off the HF noise. It should be rated for 250+v. Various combinations of resistors and capacitors may be used (or split each onto Tip and Ring) depending on the situation.

Rp prevents transformer saturation and the tap from picking up the phone line. It should be rated at least 1/2 watt.

Tiso is a 1:1 600ohm 1kV isolation transformer. If a transformer is not used, the output will be differential and less protected.

The 600ohm windings seem to be a key to help prevent echo by signal reflection (part of the telephone standards).

Fuse is just there for safety and protection. Another could be added on the wall side after the switch.

Rout sets a minimum output resistance if the pot is left wide open (usually 100-3.3k).

Zener diodes DZ protect the output from ringing (~90volts) and power spikes. They should be rated for 1/2 watt.

Depending on the signal levels, DZ is typically 3 to 5 volts zener rated. Excluding these could blow up your recording input.

RV is the output volume control.

Variations. Both Rp and Rout set initial volume levels. Many circuits have Rp being 4.7k. This made signal far too low for my phone line (which just happens to be off fiber). These parts have very high ratings on the telephone side as per regulations (as in, they tend to have "accidents"), lightning safety, and end user safety. MOV's could also be added after DZ for a little more safety. Likewise MOV's and Zeners could also be added on the telephone side for even more safety.

In reality, this would probably be overkill, but maybe not for some areas. I salvaged most of my parts from an old voice mail box. I think my transformer might actually be a 1:2 ratio. This doesn't seem to matter that much in my case.

This circuit will drop the signal level on the phone line a little bit (same as a second telephone being picked up). If the level drops too much, increase the value of Rp.