

TX/RX Sequencer

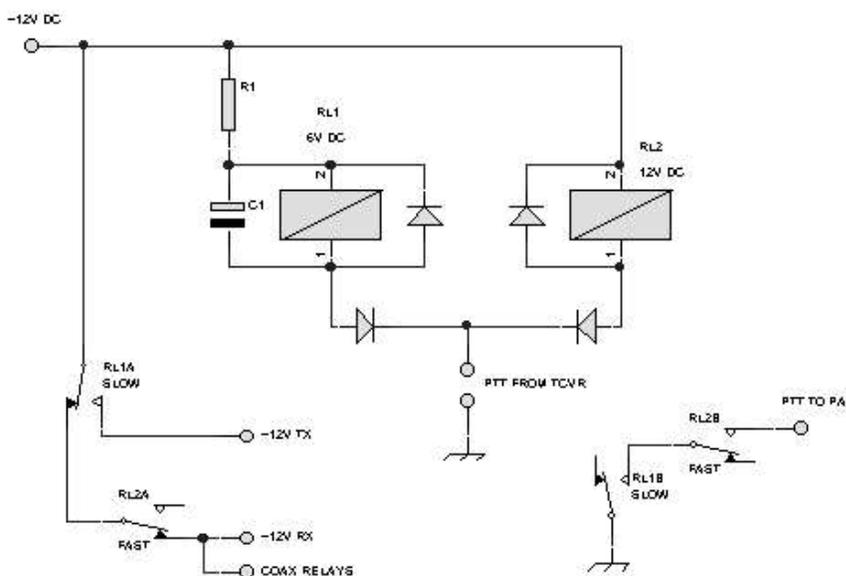
A simple, reliable sequencer

From [The VHF/UHF DX Book](#), page 11-30

This sequencer is suitable for a lineup of HF transceiver - VHF/UHF transverter - PA, but it can be adapted for other systems too.

It allows key-controlled changeover or direct PTT without damage to the preamp, the coax relays contacts or the PA. I've used this sequencer for about 18 years with never a single failure.

The sequencer uses two DPDT relays. RL2 is a 12V DC relay and operates at normal "fast" speed. RL1 is the "slow" relay - a 6V DC relay with a dropping resistor R1 approximately equal to the coil resistance of RL1. Electrolytic capacitor C1 slows both the make and the break of RL1 by a few hundred milliseconds. Choose C1 so that the two relays produce an audible double "ker-lick" when the PTT line is grounded and ungrounded (about 470uF).



The way you interlink the "fast" and "slow" contacts on the two relays depends on your switching requirements. The sequence must be:

RX to TX

1. Mute receiver
2. Change over coax relays **quickly**
3. **Wait** for relay contacts to stop bouncing
4. Enable the PA
5. Apply RF drive

TX to RX

1. Remove RF drive **quickly**
2. Disable PA
3. **Wait** to be sure RF has gone

4. Change over coax relays
5. Enable receiver.

The diagram shows a system where the coax relays are **energized on RECEIVE**. This has the advantage that the preamp is disconnected and protected whenever the whole system is powered down, and if a masthead coax relay fails you can still use the antenna.

Interlinking the relays contacts as shown above will give the right sequence of changeover. The receiver and TX driver are enabled through the 12V RX and 12V TX lines.

You key the transceiver in the normal way, and the sequencer gets its PTT signal from the accessory socket on the rear of the transceiver. The PA gets a delayed PTT signal through RL1B and RL2B, and also the 12V TX line is delayed, so no RF can reach the coax relay until it has had plenty of time to change over.

When you release the main PTT, the transceiver cuts off the RF drive and releases the PTT to the sequencer. RL2B quickly disables the PA. The 12V TX line is still on, but that doesn't matter because there is no RF drive from the transceiver. After a short delay, the coax relays change over, the 12V TX line goes off, the 12V RX line comes on, and the receiver is working again.

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