

Simulating An Active/Wet PSTN 2 Wire Line and Connecting Two Modems

INTRODUCTION

This application note describes several methods to convert Dry or Inactive PSTN lines (i.e., no voltage or current present on the line) to Wet or Active lines. Dry PSTN lines are typically used for point-to-point modem connections and or for bench testing.

CREATING OR SIMULATING AN ACTIVE/WET LINE

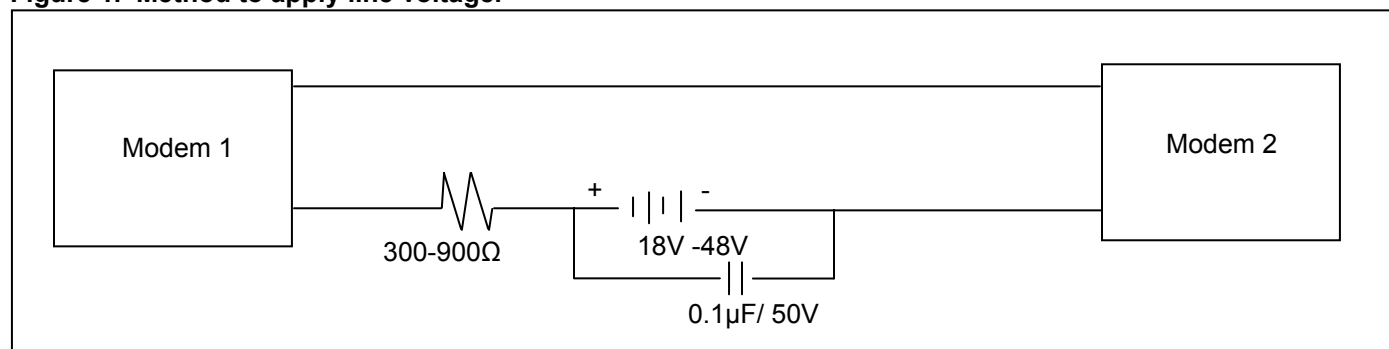
By convention on the PSTN (Public Switched Telephone Network), the TIP is considered positive and the RING is considered negative. However, in the field it is assumed that these lines may have their polarities inadvertently reversed. Consequently, the applied polarities in Figures 1 and 2 are at the discretion of the user and are intended as a guide. Choose a combination of voltage and resistance to produce a current of between 20mA to 80mA. Cermetek recommends 600Ω at 24VDC (i.e., 40mADC). Two methods for creating the Active/Wet line are described below. In either method, modem connection is made as follows:

1. Designate one modem as the Originate Modem and one modem as the Answer Modem.
2. Issue commands **ATX1** then **ATD<CR>** to the Originating Modem.
3. Issue command **ATA<CR>** to Answering Modem simultaneous with (or within the time limits set in register S7 of the originating modem) of the command issued in step 2 above.
4. Both modems will automatically connect after successful data transfer rate negotiation.

Method 1.

The capacitor is required to provide a signal quality AC signal path across the DC supply. If a power supply is used to create the DC voltage, it should be a separate floating supply with AC ground isolated at the wall plug. Refer to the schematic in Figure 1.

Figure 1. Method to apply line voltage.



Method 2.

This method will apply the line voltage to each modem (independent of the other modem) as the modem goes off-hook. The inductor is required to block the modem signals from shorting through either the DC supply or the battery (Figure 2A and 2B).

Figure 2A. Method to apply line voltage to each modem independent of the other modem when using batteries as DC source.

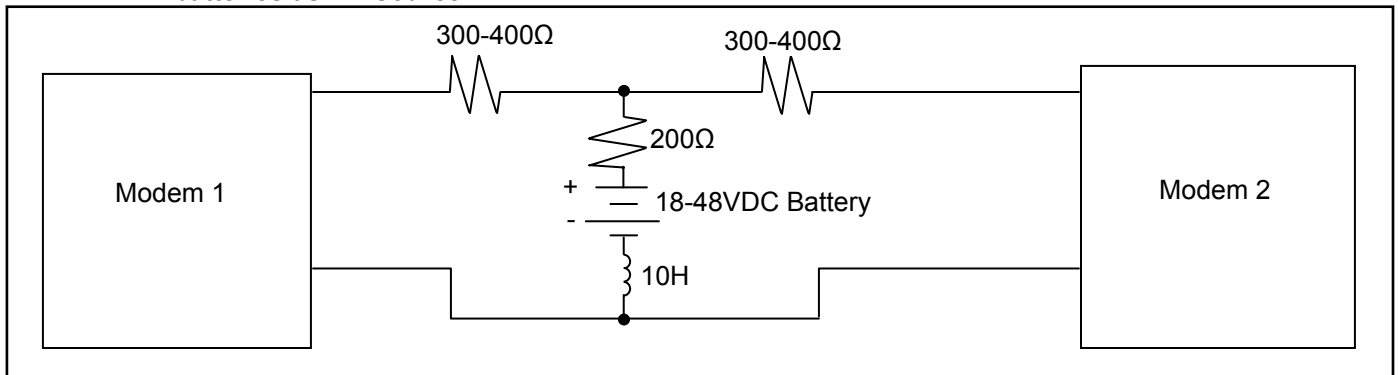
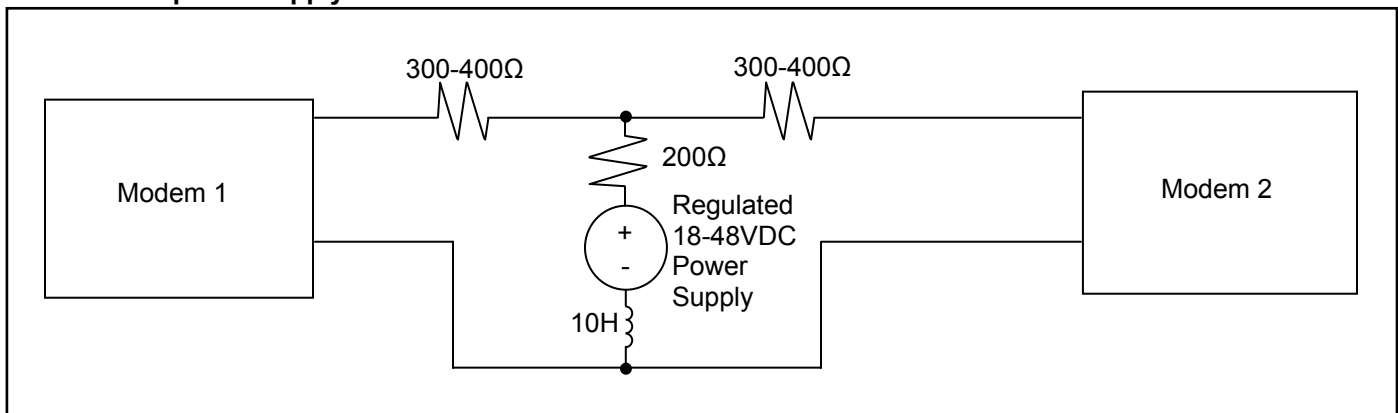


Figure 2B. Method to apply line voltage to each modem independent of the other modem when using a power supply as the DC source.



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