



Model 4014B, 4040B, 4045B

Adjustment Procedure

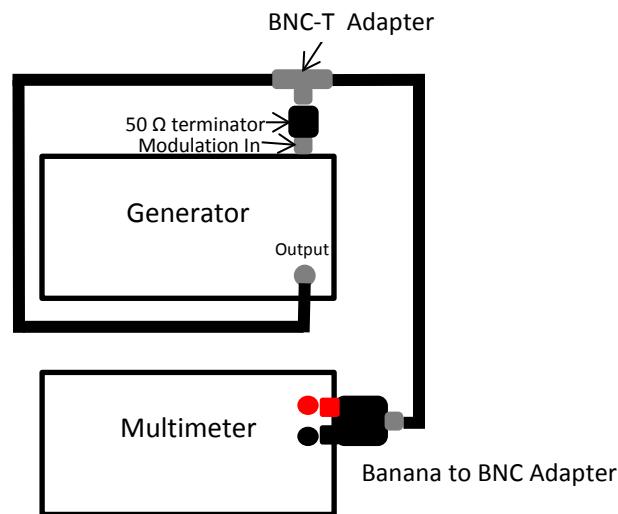
Requirements

- 5 ½ Digital Multimeter or better
- 1x Banana to BNC adapter
- 1x 50 Ω terminator, 0.1% accuracy
- 2x BNC-to-BNC coaxial cable
- 1 BNC -T adapter

Connection Setup

Follow the steps below to connect all the cables, instruments, and adapters.

1. Connect the BNC 50 Ω terminator to the **Modulation In** rear panel input of the generator.
2. Connect the BNC-T adapter to the 50 Ω terminator.
3. Connect one of the BNC-to-BNC coaxial cable from one side of the BNC-T adapter to the generator's main output BNC in the front panel.
4. Connect the Banana to BNC adapter into the multimeter's Voltage and COM inputs.
5. Connect the second BNC-to-BNC coaxial cable from the other side of the BNC-T adapter to the Banana to BNC adapter.
6. The connection should look like the below diagram:



Adjustment Procedure

The following is the adjustment procedure for the model 4014B, 4040B, and 4045B.

1. Verify that the connection between the instruments and adapters are correct. Refer to the setup diagram above.
2. Power ON the instrument and allow it to warm up for 15 minutes before proceeding. Do the same for the multimeter.

3. Once the generator and multimeter are warmed up, on the generator press **UTIL** and then select **Counter** from the menu. The press **F4** three times quickly.
4. Press **F1** (CALIB option).
5. Connect the BNC-to-BNC cable from the terminator to the output terminal of the instrument.
6. Follow the instructions from the display of the instrument: **SET V1 to 0.00 V**. To do this, set the multimeter for measuring "VDC". Then, use the rotary knob on the instrument to adjust until the VDC measured reading on the multimeter is equal to or close to 0.00 V. Press **Enter**.
7. The instrument display should now show: **SET V2 to 3.00V**. Do the same as per the previous step, except adjust the instrument until the measured reading on the multimeter is equal to or as close to 3.00 V. Then press **Enter**.
8. The instrument display should now show: **Calibrating V3 to 0.00 V**. This is part of an auto calibration process. Wait a few seconds, and the instrument will automatically calibrate and will then show **Calibrating V4 3.00 V**, then **V5 to 0.00 V**, and **V6 to 1.60 V**. These are done very quickly and should not take more than 10 seconds.
9. After those auto calibrated points, the instrument display should now show: **Enter V7 in mV**. Here, look at the multimeter measured reading and enter exactly or close to the reading on the generator by using the numeric keypad, in the units of mV. Use the "-" button to include negative if the measured reading is a negative number. For example, if the multimeter display is reading approximately -61.150 mV, then press the following in order: "-" "6" "1". This is to enter -61 mV. Now, press **Enter**.

Note: On the generator's display, it will show "V" next to the entered value, but it does not mean the entered value is in volts. You can ignore this "V". Decimals are not accepted and the entered value must be in mV as from the multimeter. If your multimeter is showing the readings in V, convert it to mV and do not enter decimal or any digits after it.
10. The instrument display should now show: **Enter Freq 4 LSD**. By default, this value is 0. Keep this value at 0 if frequency is accurate and within specifications. This parameter allows for precision of 10ppm or better on certain range of frequency. Leave it as 0 and then press **Enter**. The display will show **SAVING...** for a few seconds and a message will display "Calibration Complete". Press any function keys to exit to calibration menu.

Note: If you want to adjust to allow for greater frequency accuracy, you will need to connect the output to an oscilloscope with a counter enabled. Observe the measured frequency from the oscilloscope in the units of Hz and observe the 4 least significant digits (last 4 digits of the frequency measurement). Then, enter those 4 digits on the generator using the numeric keypad and press Enter.