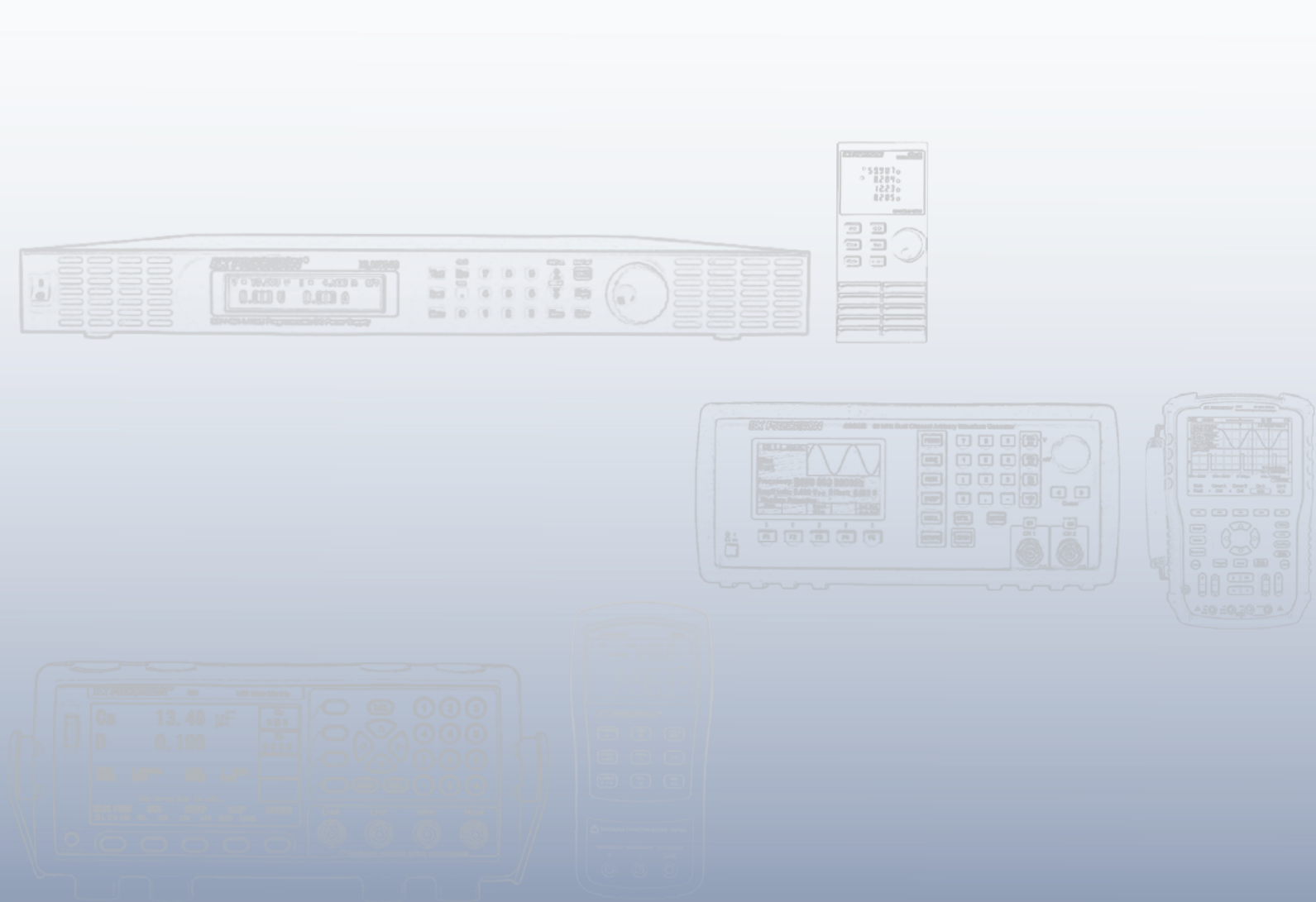


Application Brief

9800 Series - PLD Function



Non-repeating dropout using the PLD Function

Background

It is common to use AC Power Supplies to replicate “real-life” situations and stress a device under test (DUT) to see if it will withstand those conditions. With our AC Power Supply 9800 series, the PLD function is used to perform such tests, however, when there is a requirement to create a waveform with a non-repeating dropout of less than a second, some challenges are found.

Solution

The smallest “dropout” time can only be 100 ms and above. The step has a resolution of 1 millisecond.

The example created has only three steps to create the following waveform:

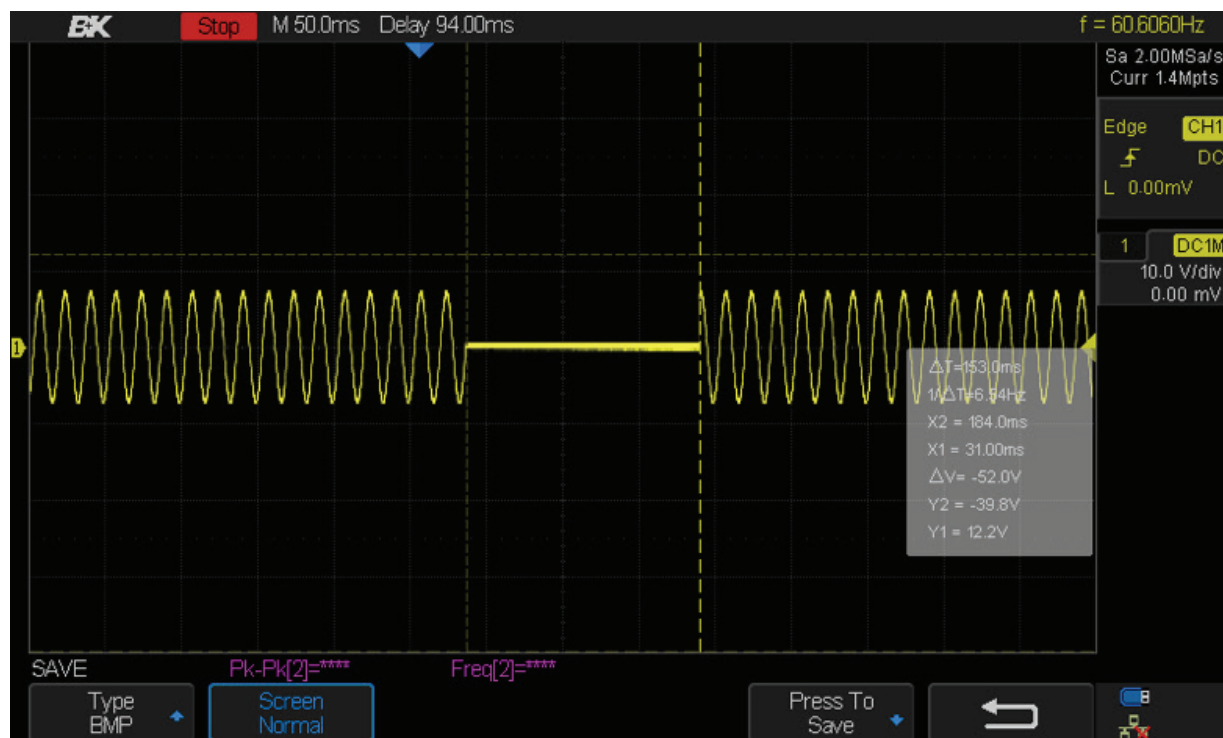


Figure 1.

Follow the below instructions to create the above waveform (fig. 1) using the software. Same logic and steps can also be used manually and through individual commands. For a detailed view of the software see Figure 2.

1. Create 3 steps in the list mode.
2. First and third steps, in this case, are set to the same values. The second step is the step where we have to pay special attention.
3. For the second step in the list:
 - a. Set a voltage and a frequency.
 - b. Enter "0" for the Slope.
 - c. Enter 0.1 seconds for the Dwell Time. The minimum size of the step.
 - d. Enable the PLD Function. Press "Enable". When enabled indicator will be lighter green.
 - e. Enter "0" for the PLD Voltage and PLD Site.

PLD Voltage: *How big the disturbance will be. Defines the voltage level of the PLD.*

PLD Site: *This parameter defines the time location with reference to the beginning of a period of the output*

 - f. For this example enter 153 (units are set to milliseconds).

PLD Time: *Duration of the PLD.*

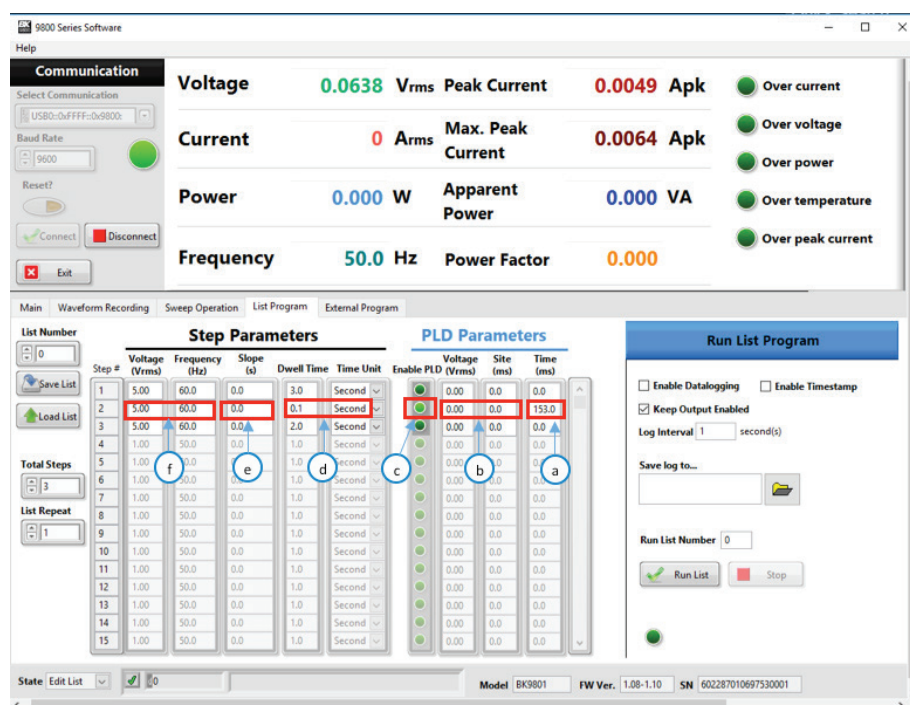


Figure 2.

If the instructions were followed correctly, the power supply will output a waveform looking like the capture below (fig. 3).

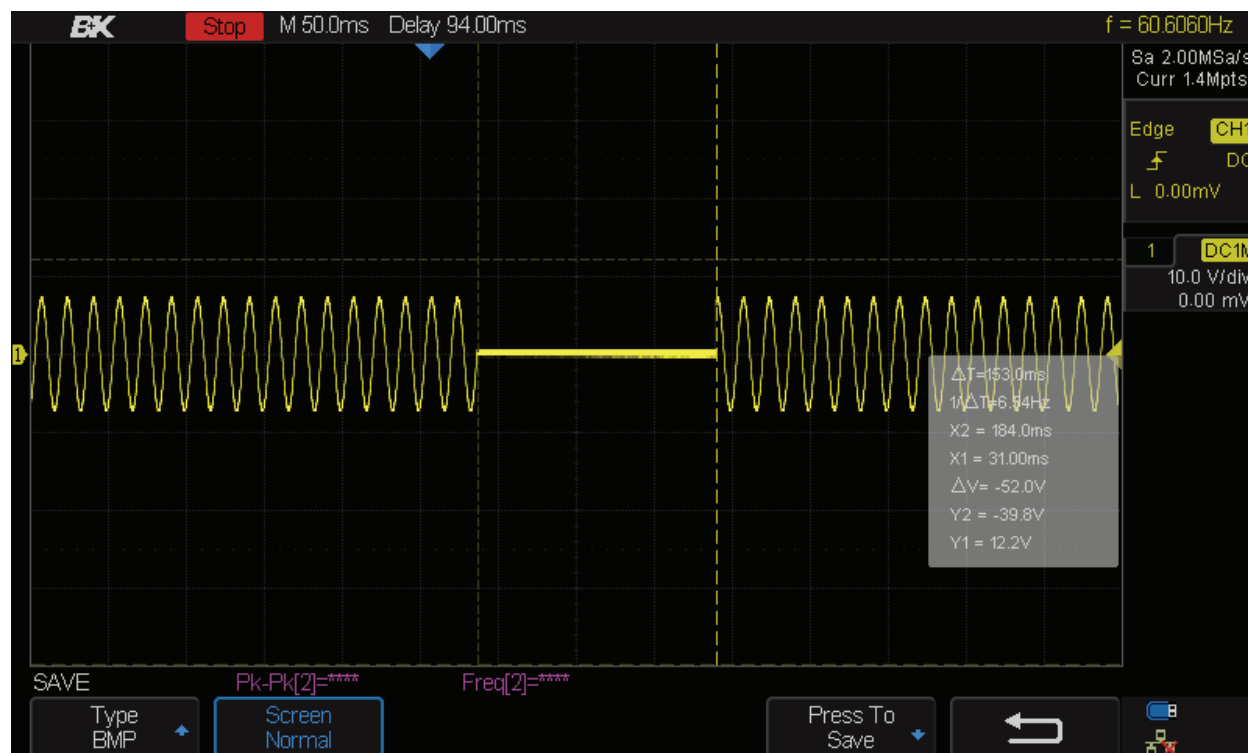


Figure 3.

Conclusion

The PLD time (SD time in the manual) help us create a non-repeating dropout. However, we have to take in consideration that “If the SD Time is greater than the Step Dwell Time, the PLD will carry this over to the next step(s) of the list until either the SD Time is reached or the end of the last step in reached, whichever comes first.” (page 40, 9800 series manual). This implies that when creating the wave above the third step size will not be accurate, it will be off by an indeterminated amount of time, but it is a small amount based on the size of the step “f”, PLD time. However, the typical interest of users is the ability to create a short dropout.