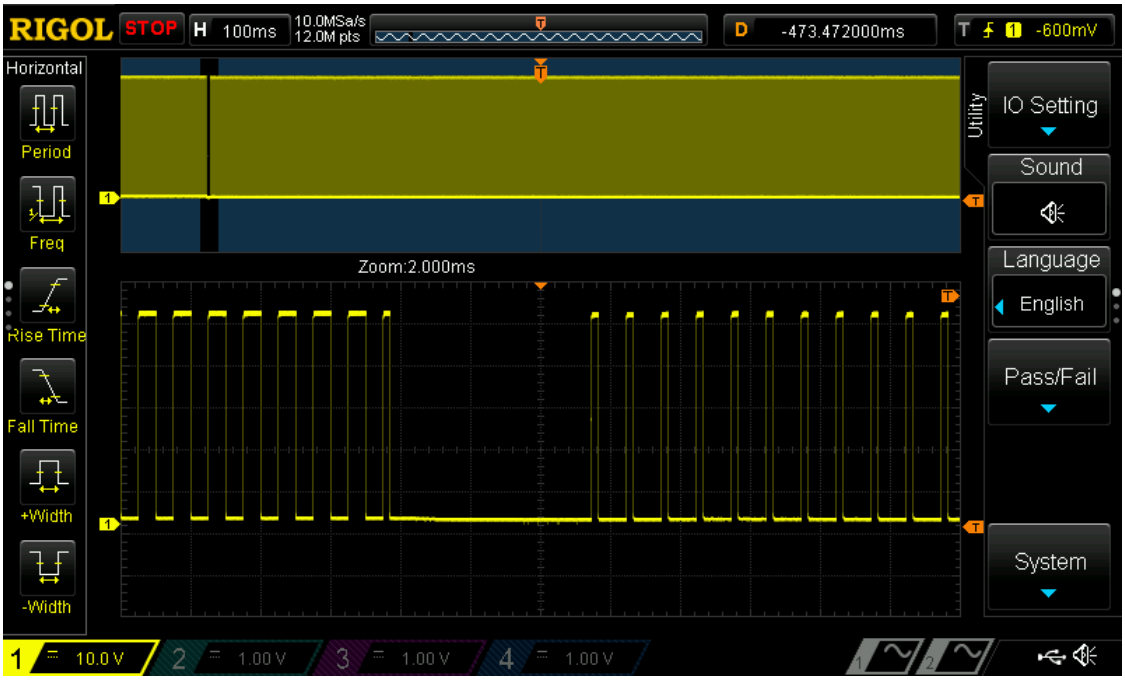
Date: 04.27.2016

Smooth Duty Cycle Changes with a DG1000Z Series Arbitrary Waveform Generator

Many arbitrary waveform generators, like the Rigol DG1022 and DG4000 series, are capable of parameter changes (frequency, amplitude, amplitude, etc.) while the output is enabled. For some applications, these adjustments can result in undesirable output states while the instrument is transitioning between settings.

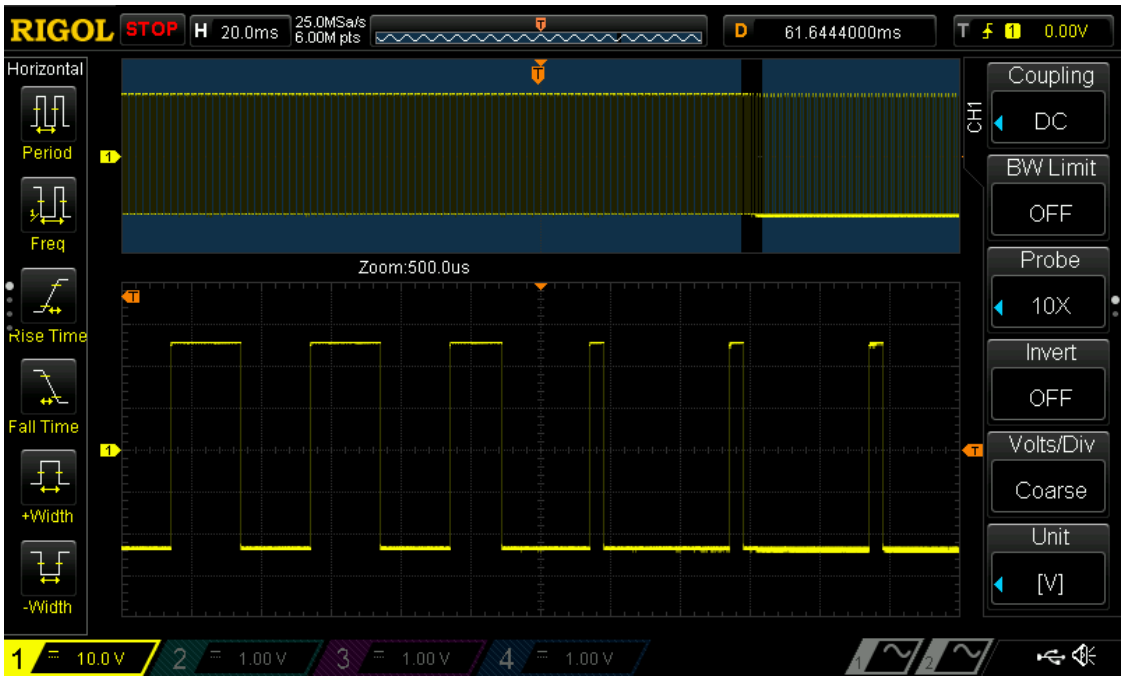
The main limitation to the DG1022 and DG4000 series is the duty cycle adjustment. If the output is enabled and the duty cycle is adjusted, the hardware will drive the output amplitude to 0V as it performs the necessary adjustment.

As an example, we have captured a DG4000 output (square wave, originally 50% duty cycle) on an oscilloscope:



As you can see, there is a time period where the waveform amplitude is 0V. This is expected and is a hardware limitation of the DG1022 and DG4000 series.

If this “drop-out” or decrease in voltage causes issues in your application, we recommend using one of the models in the DG1000Z series. These generators do not have this 0V drop out. In fact, the transition is quite smooth, as shown in this oscilloscope capture of a square wave transition from 50% to 10% duty cycle:



Find more information online [DG1000Z Family Information page]

For more information on our waveform generators or other products please go to **rigolna.com** or contact us directly at ***applications@rigoltech.com*** or call us toll free at **877-4-RIGOL-1.**

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