

Agilent 33500 Series Waveform Generators

Waveform Sequencing

Technical Overview

The Agilent 33500 Series waveform generators include an embedded waveform editor that allows you to create a wide range of arbitrary waveforms up to 1 million samples long, or up to 16 million samples with the extended memory option. Agilent BenchLink Waveform Builder Pro software allows you to create an even greater variety of arbitrary waveforms that run on the 33500 Series and other Agilent waveform generators.

However, some applications require extremely complex waveforms of more than 16 million points. Some applications also require the repetition of relatively small arbitrary waveforms over a large number of cycles, and still other applications require the arbitrary waveform to interact with the device under test (DUT) via the instrument's Sync output. In these situations and many others, sequences of arbitrary waveforms are the answer.

A sequence is simply an ordered list of arbitrary waveforms that run one after another at a specified sample rate. You can create a sequence in SCPI with the DATA:SEQUence command, but for more complex sequences, it is usually easiest to use Agilent BenchLink Waveform Builder Pro software, a program you can purchase to run on your PC, to construct a sequence.

To create a waveform sequence in Agilent BenchLink Waveform Builder Pro, select **New > Sequence** from the main menu, as shown in Figure 1.

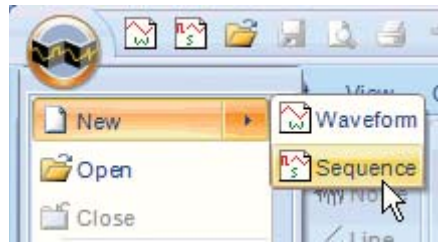


Figure 1. Creating a new sequence with Agilent BenchLink Waveform



The software opens a dialog box that allows you to specify the sequence's target instrument and sampling rate, as shown in Figure 2.

After you enter the parameters and press **OK**, you use a table to list each waveform in the sequence. For each waveform you can specify the following attributes:

- Play control (repetition and trigger configuration)
- Repeat count (number of times to play the waveform)
- Marker mode (behavior of Sync signal)
- Marker point (point in waveform at which Sync signal changes)
- This table is shown in Figure 3.

As the table in Figure 3 shows, this sequence will play "MyArb1" until a trigger is received. It will then play "MyArb4" 200 times, and it will finish by playing "MyArb2" indefinitely. The Sync signal will be maintained at its current level throughout the sequence.

The arbitrary waveform sequence capabilities of the Agilent 33500 Series allow you to quickly combine arbitrary waveforms into a wide variety of powerful combinations. They allow you to create extremely long combinations of waveforms and to use the instrument's Sync signal to interact with your DUT.

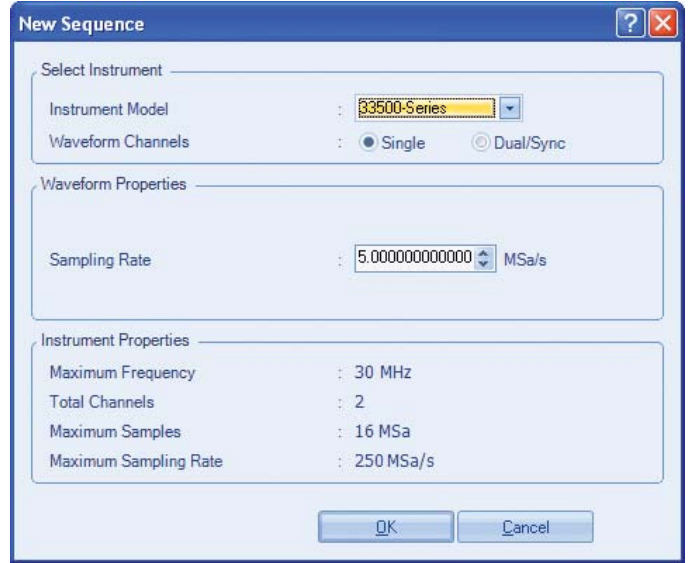


Figure 2. Dialog box for setting the parameters for a new sequence

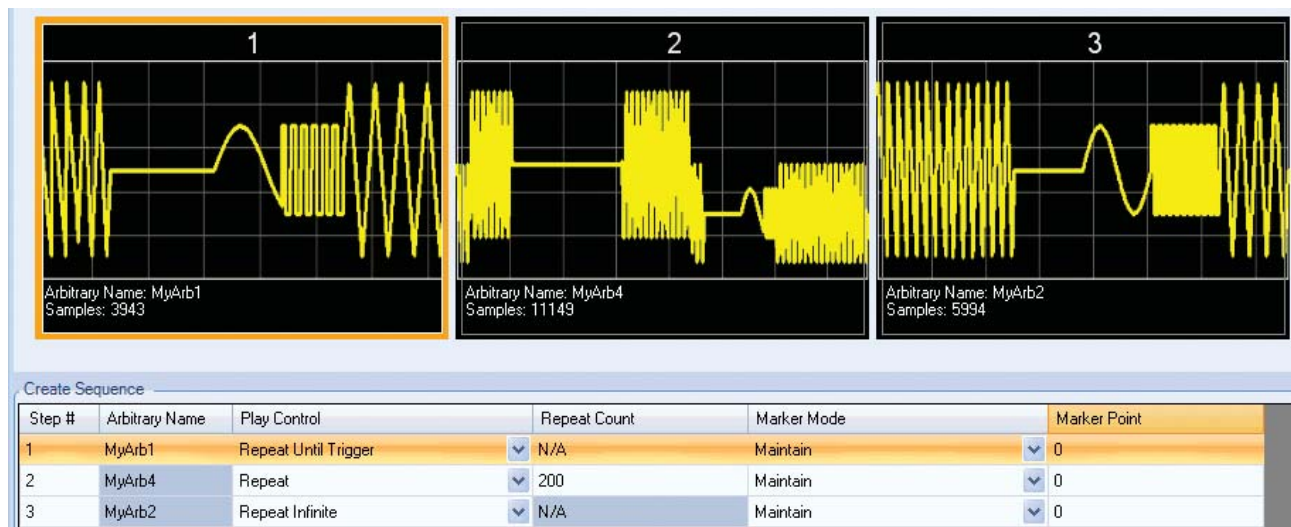


Figure 3. Table for listing each waveform in the sequence



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Revised: January 6, 2012

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© Agilent Technologies, Inc. 2012
Published in USA, October 1, 2012
5991-1129EN



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