

RIGOL'S NEW DG1000Z SERIES DIGITAL WAVEFORM GENERATORS

Make Measurable Improvements

The test and measure industry is saturated with different types of oscilloscopes and waveform generators, making it difficult for engineers to select the right one for their particular application. With that in mind, Rigol Technologies developed a product line that makes the selection easier, combining value with performance—the DG1000Z Series. EEWeb spoke with Chris Armstrong, General Manager at Rigol Technologies, about the new product line and why it's such an important release for the company.





"The exciting thing about the DG1000Z is that we've redone the foundation of the mainstream waveform generator," Armstrong explained. Rigol added new, innovative technology called SiFi that dramatically improves signal fidelity—adding greater precision and accuracy to the created waveform. The result is an instrument with incredibly deep memory for advanced applications at a fraction of the price.

"It comes standard with eight million points, with the capability of getting up to 16," Armstrong noted, "this gives you the ability to create detailed, long duration arbitrary waveforms." Armstrong said there is an issue associated with arbitrary waveforms in a traditional, simple, waveform generator. One of these main problems is that the engineer has to trim the arbitrary waveforms and sample them just right to get them to output correctly.

To remedy this, Rigol's DG1000Z product line has an output sample rate that can be dynamically set. "The engineer can take whatever arbitrary waveform he or

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she wants." Armstrong explained. "They don't need to trim or re-sample it. They can actually set the output sample rate of the instrument so it's much easier to work with large sets of data. Consequently, they get the best signal fidelity and best quality out of our generator."

Product Line Up

There are two different models in the DG1000Z family—the DG1032Z and the DG1062Z. They have a sine wave capability of 30MHz and 60MHz, respectively. Both models have two independent channels that can be synchronized and can also change phase between them. The user can perform different outputs on them and different arbitrary waves as well. These signal generators can also do different waveforms including sine, square, ramp, and pulse. Plus, arbitrary waves are completely independent.

Features and Functions

Like Rigol's other products, the DG1000Z series includes a USB in front and back, allowing the engineer to use a memory stick to move waves around. Instruments can be connected to a PC over USB as well as Ethernet programmability. A USB dongle can be hooked up allowing the engineer to control it over GPIB if needed.

Three BNC plugs are available on the front of each generator. One is a trigger and a sync output, while the other two are channels. Armstrong said, "Traditionally, if you're doing RF work and want to create noise or test immunity of your system, several steps are involved to do that in a traditional arbitrary signal. You need to create the signal in RF space, convolve the data in the



time domain, and then load the arbitrary wave while being careful of the sample rate and number of points. That is one frustrating experience."

But with the DG1000Z Series, those complex tasks are made easy. For example, Armstrong explained, "You can say, I want my base frequency to be 10 MHz; I want peaks at the third and fifth harmonic; and I want it 90 degrees out of phase and 10 dB down. Basically, you can massage the look of the signal you want while thinking about it in RF space to do the kind of things you need."

Armstrong also calls attention to the amount of modulation options that include AM, FM, Pulse, and Frequency Shift Keying (FSK). Functions like these are FPGA-based allowing Rigol to include a number of features in them. "We tend to incrementally add and build capabilities like the harmonics," Armstrong explained. "This is now the fourth or fifth generation waveform generator for Rigol and there is a lot of capability built into it. Cost keeps coming down and there are more features every time. It is an exciting process to be part of."

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Product Price Points

DG1000Z Series Waveform Generators models with Si-Fi technology enabling dynamic output sampling are in the \$600 to \$800 range, which, according to Armstrong, "is really an exciting value especially due to the deep memory capability our products offer." Some models are in stock and available immediately, others may have up to a several week lead-time. Contact Rigol for additional information, www.Rigolna.com.

