



# Application Note

## *The 3-in-1 Signal Generator*

### *Applicable Products*

SF1000
SF100E
SF800
SF800E

## Description

Signal sources are defined as devices, which provide precise, highly stable test signals for a variety of component and system test applications. Signal generators are signal sources with a variety of modulation capabilities. Signal generators may be used for an expanded set of test applications including the simulation of system signals for receiver performance testing.

The Signal Forge Digitally Synthesized Signal Generators (SF800 and SF1000) combines the features of both a signal source and signal generator. In addition, the SF1000/800 incorporate features, which make it ideal for testing differential systems, such as high-speed serial busses, analog and digital circuits and telecommunication equipment.

As is the often the case, you can reduce your design and test time significantly if you can isolate and reproduce design defects quickly. Typically this is facilitated best by setting up multiple test beds. In the past this has been difficult to do because of the large size and high cost of test equipment. However, the small form factor (8.5" x 5.5" x 1.5") and low cost of the Signal Forge generators makes it easier and affordable to setup multiple tests beds for a variety of digital and RF test applications.

### Features for testing digital circuits:

- Signal source for digital system testing
- High resolution output – in 1Hz increments
- TTL output – drive clock inputs directly
- High output driver – drive 10-20 loads directly
- 3.3V, 2.5V and 1.2V voltage amplitudes to drive very low voltage devices directly
- The frequency can be varied at a specific rate as well as for total frequency variation, for example: +/- ppm clock margin testing.
- External control of frequency modulation

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### **Features for testing Analog/RF circuits:**

- High resolution output – in 1Hz increments from 100 KHz up to 1GHz
- Sine wave output, AC coupled
- FSK with programmable deviation range and rate
- OOK and ASK – fully programmable
- AM output – fully programmable
- Arbitrary waveform modulation
- Wave Manager software – enable you to setup a new waveform while a previous waveform is running
- Sweep – the frequency may be varied at a specific rate as well as for total frequency variation
- External control of FSK, OOK, AM operation

### **Features for testing Differential clocks and Serial data busses:**

- High resolution output – in 1Hz increments up to 1 GHz
- FSK with programmable deviation range and rate
- OOK – fully programmable
- Arbitrary waveform modulation
- Wave Manager Menu – enables you to setup a new waveform while a previous waveform is running
- Sweep – the frequency may be varied at a specific rate as well as for total frequency variation
- External control of FSK, OOK operation
- LVPECL output provided but may be used to test CML or other serial interface with the appropriate interface (up to 1 GHz)