

# The Best Value in Electronic Test & Measurement



## SDG2000X Series Function/Arbitrary Waveform Generators



### Product Overview

SIGLENT's SDG2000X is a series of dual-channel function/arbitrary waveform generators with specifications of up to 120MHz maximum bandwidth, 1.2GSa/s sampling rate and 16-bit vertical resolution. The proprietary TrueArb & EasyPulse techniques help to solve the weaknesses inherent in traditional DDS generators when generating arbitrary, square and pulse waveforms. With advantages above, SDG2000X can provide users with a variety of high fidelity and low jitter signals, which can meet the growing requirements of complex and extensive applications.

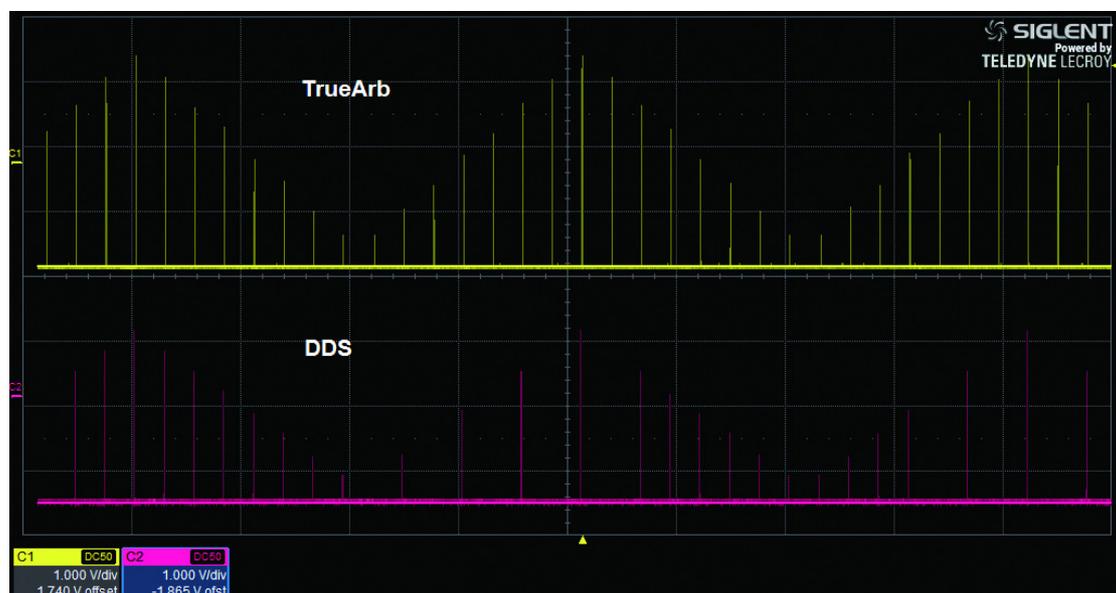
### Key Features

- ◆ Dual-channel, 120MHz maximum bandwidth, 20Vpp maximum output amplitude, high fidelity output with 80dB dynamic range
- ◆ High-performance sampling system with 1.2GSa/s sampling rate and 16-bit vertical resolution. No detail in your waveforms will be lost
- ◆ Innovative TrueArb technology, based on a point-by-point architecture, supports any 8pts~8Mpts Arb waveform with a sampling rate in range of 1 $\mu$ Sa/s~75MSa/s
- ◆ Innovative EasyPulse technology, capable of generating lower jitter Square or Pulse waveforms, brings a wide range and extremely high precision in pulse width and rise/fall times adjustment
- ◆ Plenty of analog and digital modulation types: AM, DSB-AM, FM, PM, FSK, ASK and PWM
- ◆ Sweep and Burst function
- ◆ High precision Frequency Counter
- ◆ Standard interfaces: USB Device, USB Host, LAN (VXI-11, support U Disk storage and software, upgrading GPIB port is optional)
- ◆ 4.3" touch screen display for easier operation

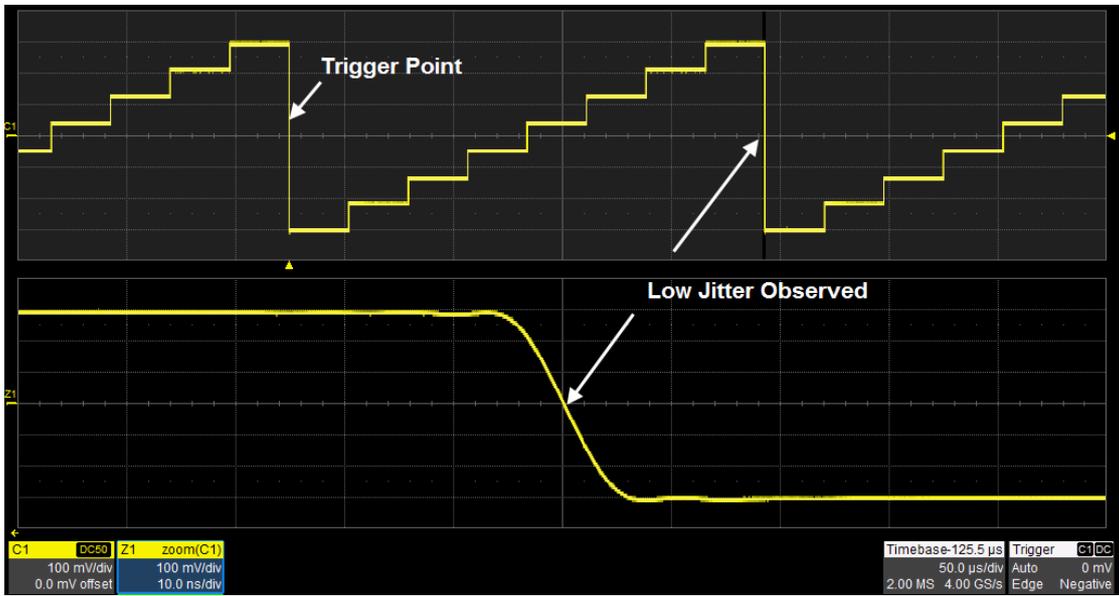
### Characteristics

#### TrueArb Technology Architecture

With SIGLENT's TrueArb technology, the generator retains the advantages of DDS technology while overcoming the serious weaknesses of DDS jitter and distortion. Because TrueArb technology generates arbitrary waveform in a point-by-point fashion, every data point is used to generate the output signal which has been stored in memory. Data points will not be missed or repeated and arbitrary waveforms possess very low jitter (< 150ps).

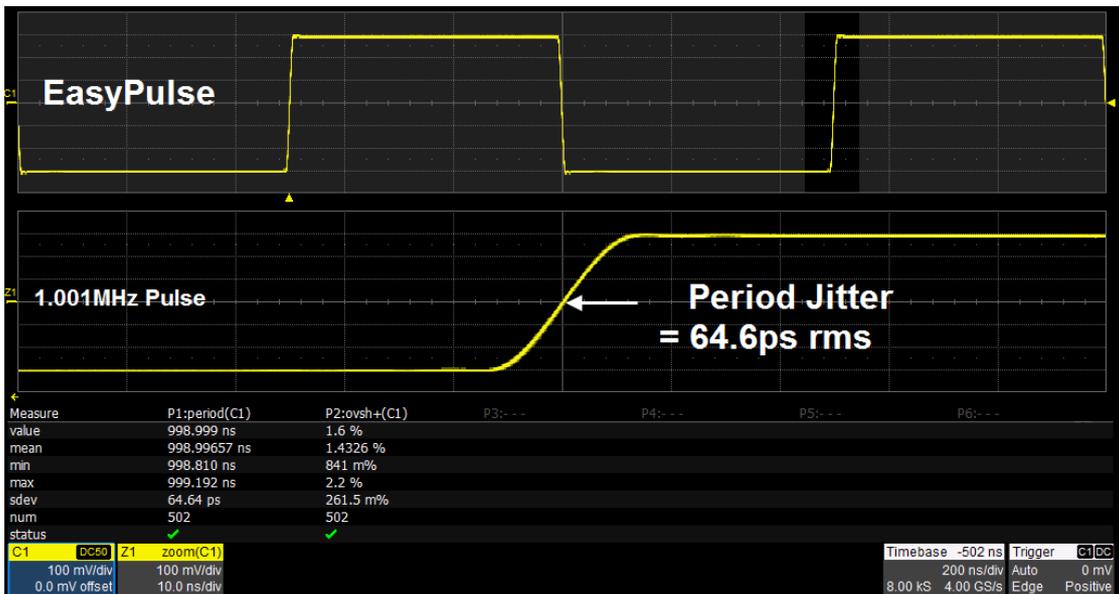
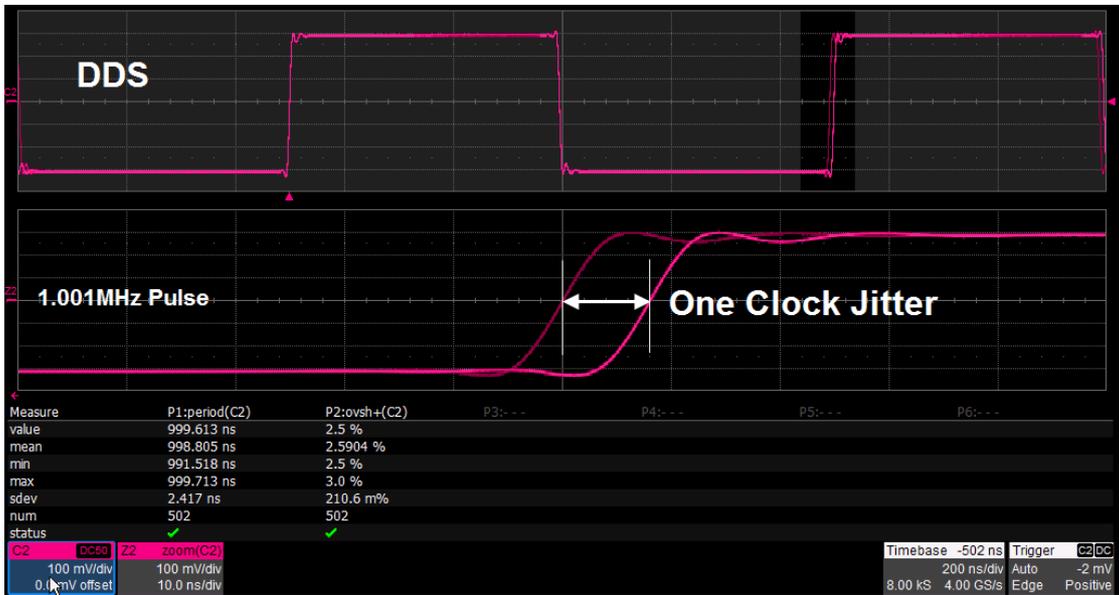


TrueArb technology produces an arbitrary waveform point-by-point, not missing any details of the waveform



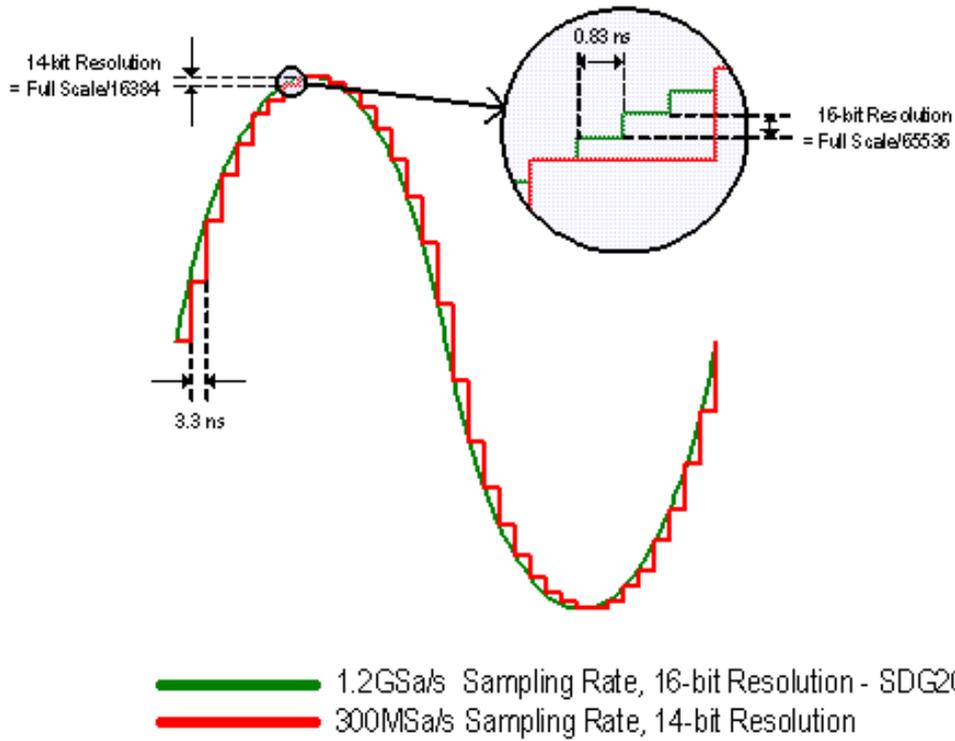
Like EasyPulse technology, TrueArb technology effectively overcomes the limitations of DDS to produce a sampling period with very low jitter

### EasyPulse Technology



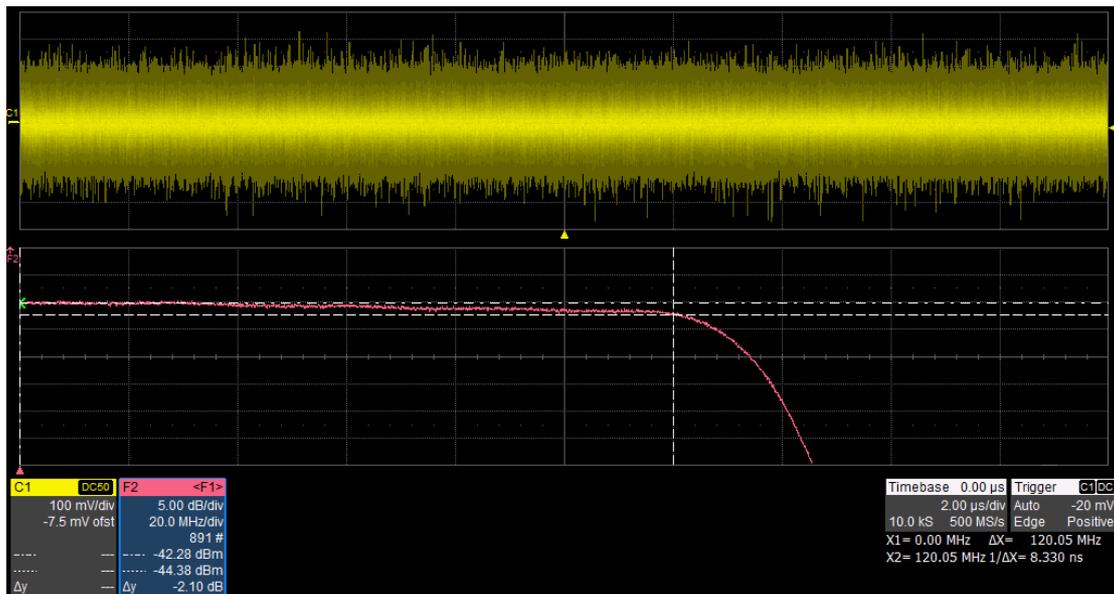
When a Square/Pulse waveform is generated by DDS, there will be a one-clock-jitter if the sampling rate is not an integer-related multiple of the output frequency. SDG2000X EasyPulse technology successfully overcomes this weakness in DDS designs and helps to produce low jitter Square/Pulse waveforms.

## High-Performance Sampling System

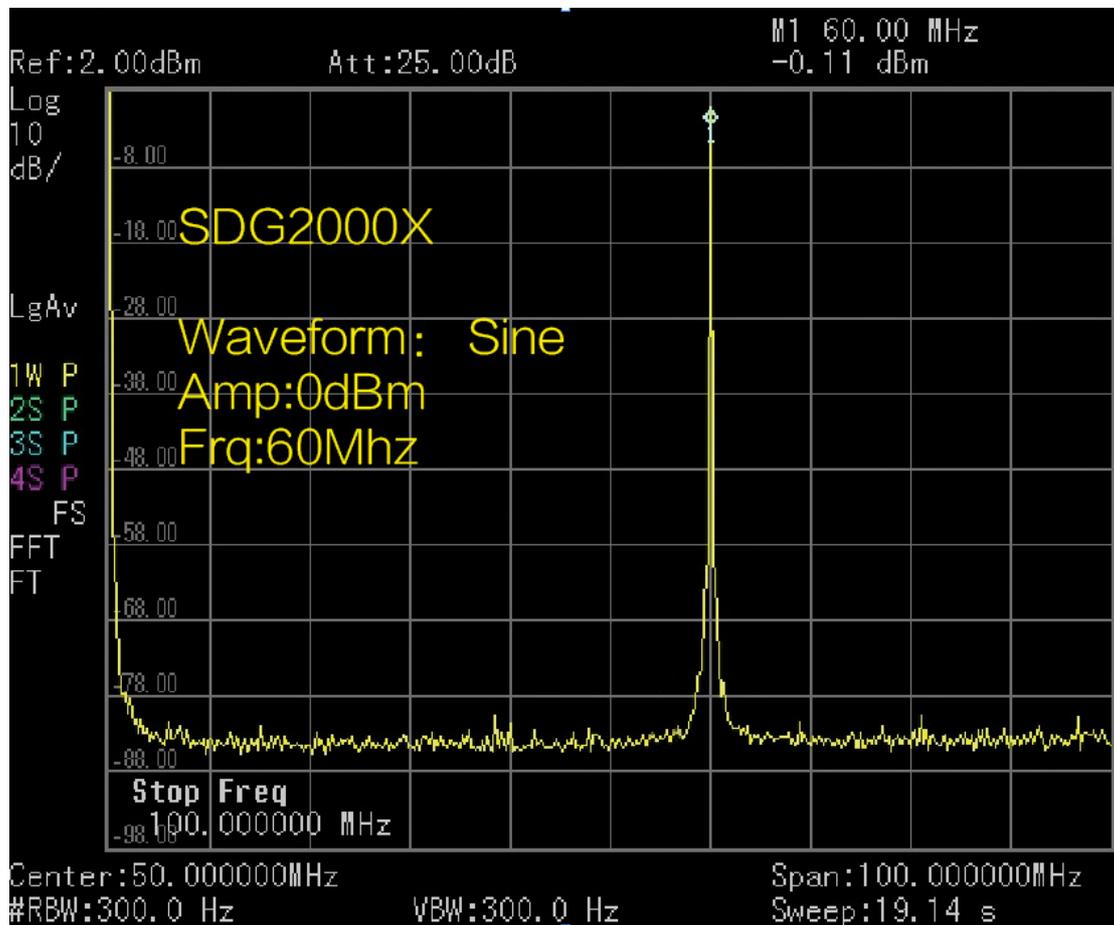


Benefiting from a 1.2GSa/s and 16-bit sampling system, SDG2000X achieves extremely high accuracy performance in both time domain and amplitude, which results in more accurately reconstructed waveforms and lower distortion.

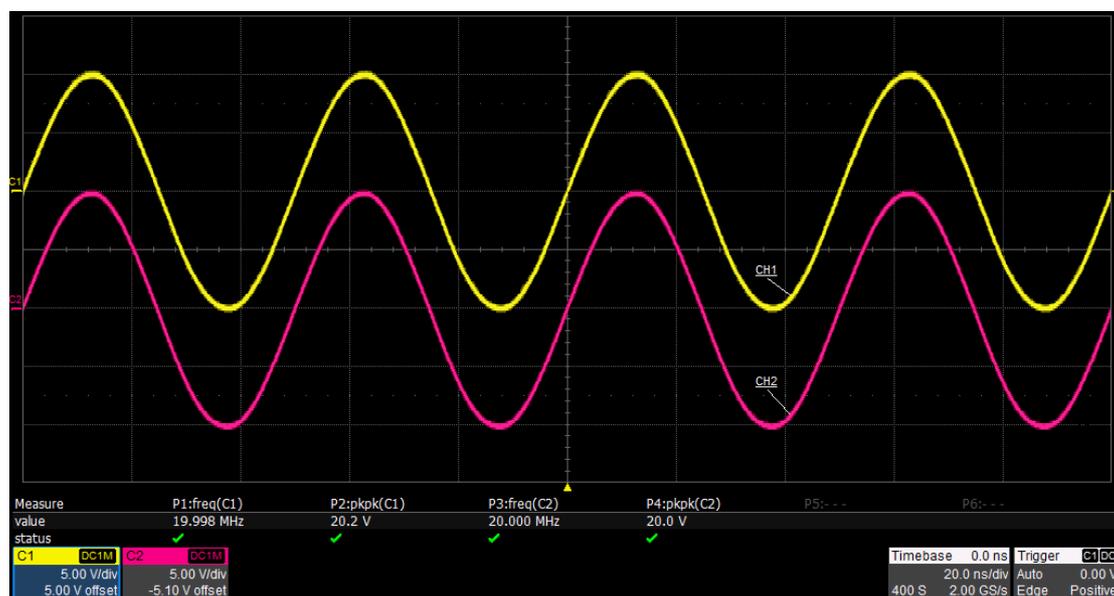
## Excellent Analog Channel Performance



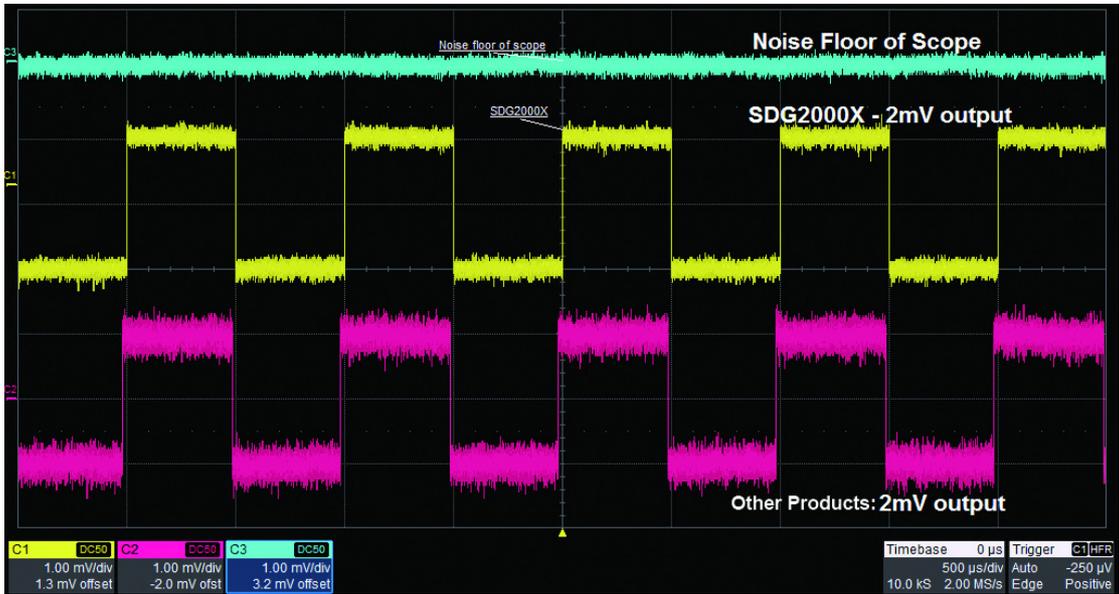
The bandwidth of analog channels proves to be greater than 120MHz, via doing a frequency response test with white noise.



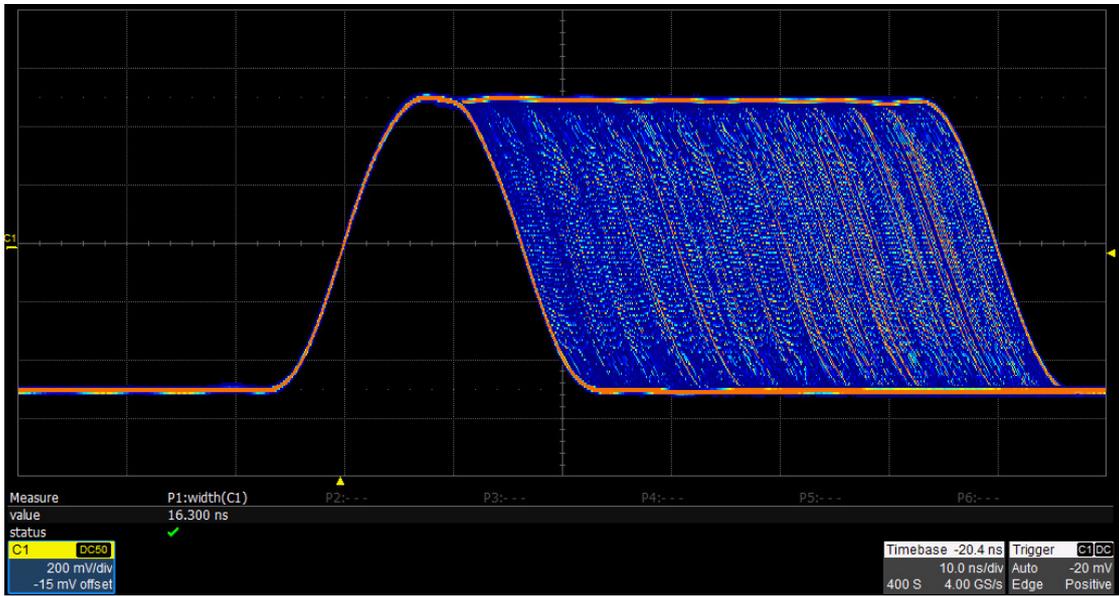
High fidelity sine output. Almost no spurious observed @60MHz, 0dBm.



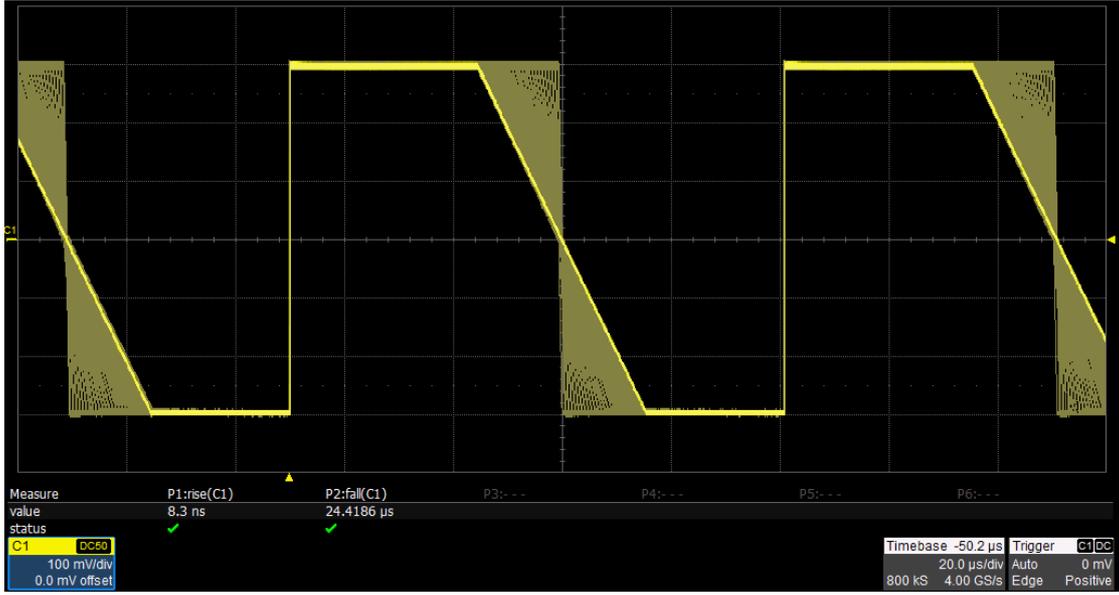
Capacity of outputting large signal at high frequency. Dual-channel, 20 Vpp amplitude can be guaranteed even @20 MHz.



Low noise floor, improves signal-noise ratio.



The Pulse width can be fine-tuned to the minimum of 16.3ns with the adjustment step as small as 100ps.



The rise/fall times can be set independently to the minimum of 8.4ns at any frequency and to the maximum of 22.4s. The adjustment step is as small as 100 ps.

Rich modulation features

**CH1: Sine.OFF.HiZ**      **CH2: Sine.ON.HiZ**      **Mod**

Frequency 1.000000kHz  
 Amplitude 4.000 Vpp  
 Offset 0.000 Vdc  
 Phase 0.0°

AM Depth 100.0 %  
 AM Freq 100.000000 Hz      Load HiZ  
 Output ON

**AM**    FM    PM    FSK    ASK    DSB-AM

Support for AM, FM, PM, FSK, ASK, DSB - AM provide for a variety of analog and digital modulation mode, "internal" and "external" modulation.

Burst function

**CH1: Sine.OFF.HiZ**      **Burst**      **CH2: Square.OFF.HiZ**      **Mod**

Frequency 10.000000kHz  
 Amplitude 6.000 Vpp  
 Offset 0.000 Vdc  
 Phase 0.0°

Start Phase 0.0°  
 Cycles 1000000 Cycle      Load HiZ  
 Burst Period 100.000001 s      Output OFF

NCycle      **Cycles**      Start      Burst      Source      Page  
 Gated      Infinite      Phase      Period      Internal      1 / 2 ▶

Two Burst mode: "N cycle" and "Gated" control. Internal and external modulation available.

### Sweep function

CH1:Sine.OFF.HiZ Sweep CH2:Square.OFF.HiZ Mod

Frequency 10.000000kHz  
 Amplitude 6.000 Vpp  
 Offset 0.000 Vdc  
 Phase 0.0°

Sweep Time 1.000000 s

Start Freq 0.000000 Hz Load HiZ  
 Stop Freq 20.000000kHz Output OFF

Sweep Time	StartFreq	StopFreq	Source	Trig Out	Page
	CenterFreq	FreqSpan	Internal	Off	1 / 2 ▶

Support both log and linear sweep modes, "up" and "down" sweeping. Three kinds of triggering: Internal, External and Manual

### Frequency counter function

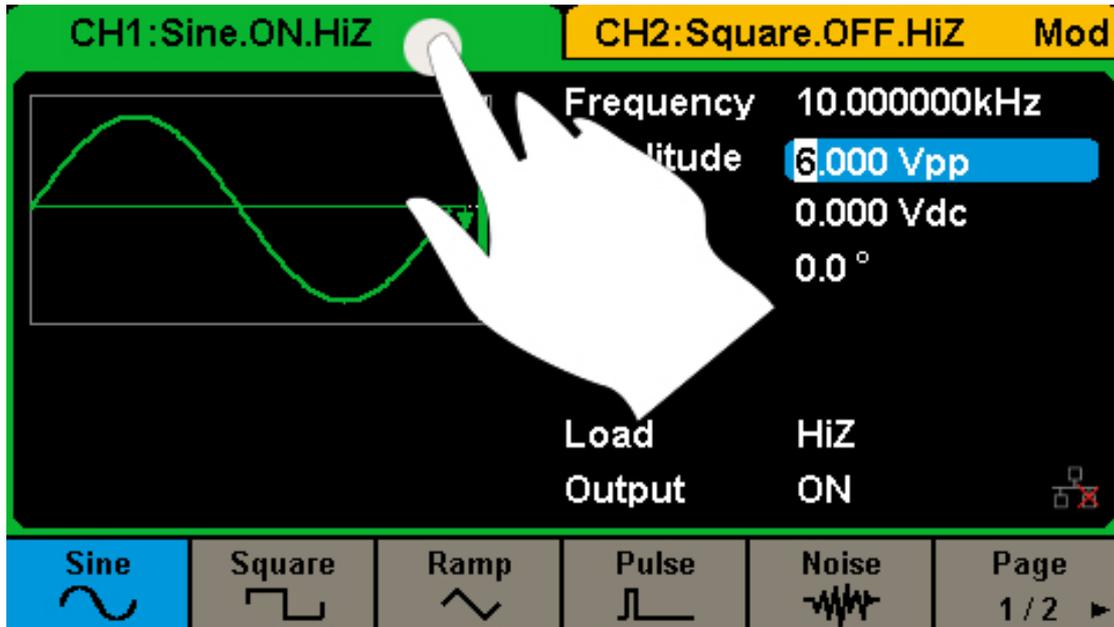
Counter:ON

Frequency 9.997066kHz  
 Positive Width 50.794us  
 Duty 50.7 %  
 Freq Deviation -0.000000ppm  
 Ref Freq 17.000000MHz

State	Frequency	Pwidth	RefFreq	Setup	Cancel
On	Period	Nwidth	TrigLev		

High precision Frequency Counter with an input frequency range of 0.1Hz~200MHz.

4.3 inch high definition touch screen



4.3" touch screen display, makes operation much more convenient.

#### Arbitrary waveform EasyWave editing software



EasyWave is a powerful arbitrary waveform editing software that supports several ways to generate arbitrary waveform such as manual drawing, line-drawing, equation-drawing, coordinate-drawing, etc. It is quite convenient for users to edit their own arbitrary waveforms through EasyWave.

## Rear Panel



## Ordering Information

### Product Model

SDG2122X, 120 MHz, 2 channel

SDG2082X, 80 MHz, 2 channel

SDG2042X, 40 MHz, 2 channel

### Standard Accessories

A Quick Start

A Product Certification

A Power Cord

A Calibration Certificate

Certificate of Calibration -1

A BNC Coaxial Cable

A CD (Including Quick Start, datasheet, and Application Software Package)

### Optional Accessories

USB-GPIB adapter

Modell	Max output frequency	Max sampling rate	Vertical resolution	Wave length	Channels
 SDG2122X	120MHz	1.2GSa/s	16bit	8pts~8Mpts	2
 SDG2082X	80MHz	1.2GSa/s	16bit	8pts~8Mpts	2
 SDG2042X	40MHz	1.2GSa/s	16bit	8pts~8Mpts	2

## Verkauf und technische Betreuung

**mem**

Messtechnik & Elektronik GmbH  
 Pilartzstr. 9 D-83549 Eiselfing

Telefon: 08071 923060 FAX: 08071 9230619  
 mail@mem-gmbh.de www.mem-gmbh.de