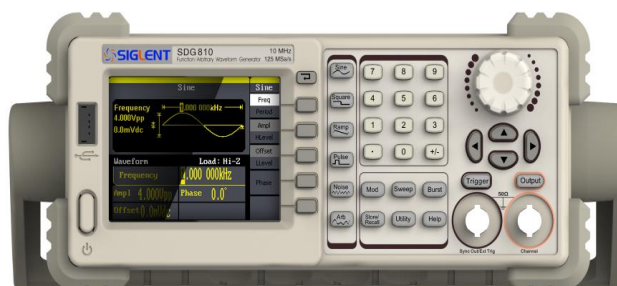


# Data Sheet

## SDG800 Series Function/Arbitrary Waveform Generator

- ◆ DDS technology, Single-channel output
- ◆ 125MSa/s sample rate, 14bit vertical resolution.
- ◆ 5 types of standard output waveform, built-in 46 arbitrary waveforms(include DC)
- ◆ Complete set of modulation functions: AM, DSB-AM, FM, PM, FSK, ASK, PWM, Sweep, Burst
- ◆ Abundant input/output: waveform output, Synchronous signal output, external trigger input.
- ◆ Standard interfaces: USB Device, USB Host.
- ◆ Supplied with powerful arbitrary editing software
- ◆ Support remote control



### Reasonable price & outstanding performance

SDG800 series Function/Arbitrary Waveform Generator is a new family member of SIGLENT with friendly design: 3.5 inch TFT-LCD display; Built-in Chinese/English language; Online help function; Support U disk and internal storage, facilitative files management.

### Application fields:

- ◆ Analog sensor
- ◆ Simulation environment signals
- ◆ Circuit function test
- ◆ IC test
- ◆ Researching and training

### Edit arbitrary waveform

Enables edition of 14-bit 16kpts arbitrary output waveforms, Arbitrary editing software EasyWave provides 9 standard waveforms: Sine, Square, Ramp, Pulse, ExRise, ExpFall, Sinc, Noise and DC, which meets all engineers' basic needs; In addition, it provides plenty of ways of manual drawing, point-to-point line drawing and arbitrary point drawing. It facilitates to create complex waveforms; Multi-file screen management helps users to edit multiple-waveform simultaneously. It provides 10 Storage in non-volatile RAM. You can edit and store more waveforms by EasyWave.

### **Arbitrary waveform output**

Built-in 46 arbitrary waveforms(include DC), including math, engineering and other commonly-used waveforms.

### **Complete set of modulation functions, sweep output, burst output**

- ◆ Complete set of modulation functions: AM, DSB-AM, FM, PM, FSK, ASK, PWM, the modulation waveform can be observed directly, which it is suitable for education and training;
- ◆ Sweep output: change output frequency from starting frequency to ending one within sweeping time, Sweeping time range: 1ms~500s. The carrier can be Sine, Square, Triangle and Arbitrary waveforms.
- ◆ Burst output: It can periodically generate pulse sequence. Internal counter and external control signal are available to control burst output.

## Specification

Model	SDG805	SDG810	SDG830
Max. output frequency	5 MHz	10 MHz	30 MHz
Output channels	1		
Sample rate	125MSa/s		
Arbitrary waveform length	16kpts		
Frequency resolution	1 $\mu$ Hz		
vertical resolution	14bits		
Waveform	Sine, Square, Ramp, Pulse, Gaussian Noise. 46 built-in arbitrary waveforms(include DC)		
Modulation	AM, DSB-AM, FM, PM, FSK, ASK, PWM, Sweep, Burst		
Standard interface	USB Host & USB Device		
Dimension	W x H x D=229mm x 105mm x 281mm		

## Attention:

All these specifications apply to the SDG800 Series Function/Arbitrary Waveform Generator unless otherwise explanation. To satisfy these specifications, the following conditions must be met first:

1. The instrument has been operating continuously for more than 30 minutes within specified operating temperature range (18°C~28°C).
2. The temperature variation does not exceed 5°C.

**Note: all specifications are guaranteed unless where noted 'typical'.**

Frequency Specification			
Model	SDG805	SDG810	SDG830
Waveform	Sine, Square, Ramp, Pulse, Noise, Arbitrary		
Sine	1μHz ~ 5MHz	1μHz ~ 10MHz	1μHz ~ 30MHz
Square	1μHz ~ 5MHz	1μHz ~ 10MHz	1μHz ~ 10MHz
Pulse	500μHz ~ 5MHz		
Ramp/Triangular	1μHz ~ 300kHz		
Gaussian white noise	>5MHz (-3dB)	>10MHz (-3dB)	>30MHz (-3dB)
Arbitrary	1μHz ~ 5MHz		
Resolution	1μHz		
Accuracy	Within 90days ±50ppm within 1 year ±100ppm		
Temperature coefficient	<5ppm/°C		

Sine Wave	
Harmonic Distortion	DC~1MHz <-60dBc
	1MHz~10MHz <-55dBc
	10MHz~30MHz <-50dBc
Total harmonic waveform distortion	DC~20kHz, 1Vpp<0.2%
Spurious signal(non-harmonic)	DC~1MHz<-70dBc 1MHz~10MHz<-60dBc 10MHz~30MHz<-55dBc
Phase noise	10kHz Offset, -108dBc/Hz(typical value)

Square Wave	
Rise/fall time	<24ns(10% ~ 90%)
Overshoot	<5%(typical, 1kHz, 1Vpp)
Duty Cycle	20%~80%
Asymmetric(50% Duty Cycle)	1% of period+20ns(typical, 1kHz, 1Vpp)
Jitter	500ps + 0.001% of period

Ramp/Triangle Wave	
Linearity	<0.1% of Vpp(typical, 1kHz, 1Vpp, 100% symmetric)
Symmetry	0%~100%

Pulse Wave	
Pulse width	16ns, Min. 1ns resolution
Rise/Fall time (10% ~ 90%, typical)	20ns~1.6ks
Duty Cycle	0.1% Resolution
Overshoot	<5%
Jitter(pk-pk)	500ps + 0.001% of period

Arbitrary Wave	
Waveform length	16k points
Vertical resolution	14bits
Sample rate	125MSa/s
Min. Rise/Fall time	8ns(typical)
Jitter(pk-pk)	8ns(typical)
Storage in non-volatile RAM memory (10 in total)	10 waveforms

Output Specification	
Amplitude	2mVpp~10Vpp(50Ω,≤10MHz) 2mVpp~5Vpp(50Ω,>10MHz) 4mVpp ~ 20 Vpp (High impedance, <10MHz) 4mVpp ~ 10Vpp (High impedance,>10MHz)
Vertical accuracy (100 kHz sine)	±1mVpp +0.3dB of setting value)
Amplitude flatness (compared to 100 kHz sine,5Vpp)	±0.3 dB
Impedance	50Ω
Protection	short-circuit protection

DC Offset	
Range(DC)	±5V(50Ω) ±10V(High-Z)
Offset accuracy	±( setting offset value *1%+3mV)

AM Modulation	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary (2mHz ~ 20kHz)
Modulation depth	0% ~ 120%

DSB-AM Modulation	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary (2mHz ~ 20kHz)
Modulation depth	0% ~ 120%

FM Modulation	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary(2mHz~20kHz)
Frequency deviation	0 ~0.5*bandwidth 1mHz resolution

<b>PM Modulation</b>	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary (2mHz~20kHz)
Phase Deviation	0~360°, 0.1° Resolution
<b>FSK Modulation</b>	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	50% duty-cycle square waveform(2mHz~50kHz)
<b>ASK Modulation</b>	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	50% duty-cycle square waveform(2mHz~50kHz)
<b>PWM Modulation</b>	
Frequency	500μHz~20kHz
Modulation waveform	Sine, Square, Ramp, Arbitrary(except DC)
<b>Sweep</b>	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Type	linear/logarithmic
Direct	Up/down
Sweep time	1ms~500s
Trigger source	Manual, external, internal
<b>Burst</b>	
Waveform	Sine, Square, Ramp, Pulse, Arbitrary(except DC)
Type	Count(1~50,000 periods), infinite, Gated
Start/Stop phrase	0°~360°
Internal period	1μs~500s
Gated source	External trigger
Trigger source	Manual, External or Internal

<b>Trigger Input</b>	
Input Level	TTL compatible
Slope	Up or down
Pulse width	>100ns
Input impedance	>5kΩ, DC coupling

<b>SYNC Output</b>	
Voltage level	TTL compatible
Pulse width	>50ns
Output impedance	50Ω(typical)
Max. frequency	2MHz

## General Specification

Display	
Display type	3.5 inch TFT-LCD
Resolution	320×RGB×240
Color depth	24bit
Contrast Ratio	350:1 (typical)
Luminance	300cd/m <sup>2</sup> (typical)
Power	
Voltage	100~240 VAC <sub>RMS</sub> , 50/60Hz
	100~120 VAC <sub>RMS</sub> , 440Hz
Consumption	<30W
Fuse	1.25A, 250V
Environment	
Temperature	Operation:0℃ ~40℃
	Storage:-20℃ ~60℃
Humidity range	Below +35℃:≤90% relative humidity
	+35℃~+40℃:≤60% relative humidity
Altitude	Operation: below 3,000 meters
	Storage: below 15,000 meters
Electromagnetic Compatibility	2004/108/EC Directive
	Applicable standards EN 61326-1:2006
	EN 61000-3-2:2006 + A2:2009
	EN 61000-3-3:2008
Safety	2006/95/EC Low Voltage Directive
	EN 61010-1:2010
Others	
Dimension	Width:229mm
	Height:105mm
	Depth:281mm
Weight	N.W: 2.6Kg
	G.W: 3.4Kg
IP protection	
IP2X	
Calibration Cycle	
1 year	



## About SIGLENT

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of test & measurement instruments.

SIGLENT began to research and develop the Digital Oscilloscope independently in 2002. After a decade of development products have included digital oscilloscopes, isolated handheld oscilloscopes, function/arbitrary waveform generators, digital multimeters, DC power supplies, spectrum analyzers, and other general purpose test instrumentation. Since SIGLENT's first oscilloscope, the ADS 7000 series produced in 2005, SIGLENT has maintained the highest annual growth rate and has been the fastest developing DSO manufacturer over the past 10 years. Nowadays, SIGLENT Technologies is the leading manufacturer of oscilloscopes by shipments in China.

### Distributor:

## Welectron.

Haid-und-Neu-Str. 7  
76131 Karlsruhe, Germany  
Phone: +49 721 909819-90  
Email: [info@welectron.com](mailto:info@welectron.com)  
Web: [www.welectron.com](http://www.welectron.com)

### Headquarters:

SIGLENT TECHNOLOGIES CO., LTD.  
Blog No.4 & No.5, Antongda Industrial Zone,  
3rd Liuxian Road, Bao'an District,  
Shenzhen, 518101, China.  
Phone: +86 755 3661 5186  
Fax: +86 755 3359 1582  
Email: [sales@siglent.com](mailto:sales@siglent.com)  
Web: [www.siglent.com](http://www.siglent.com)

### USA:

SIGLENT Technologies America, Inc  
6557 Cochran Rd Solon, Ohio 44139  
Phone: 440-398-5800  
Toll Free: 877-515-5551  
Fax: 440-399-1211  
Email: [info@siglent.com](mailto:info@siglent.com)  
Web: [www.siglentamerica.com](http://www.siglentamerica.com)

### Europe:

SIGLENT TECHNOLOGIES EUROPE GmbH  
Liebigstraße 2-20, Gebäude 14  
22113 Hamburg, Germany  
Phone: +49 819-95946  
Fax: +49 819-95947  
Email: [info-eu@siglent.com](mailto:info-eu@siglent.com)  
Web: [www.siglenteu.com](http://www.siglenteu.com)

Follow us on  
Facebook: SiglentTech

