

## **Data Sheet**



## SDG800 Series Function/Arbitrary Waveform Generator

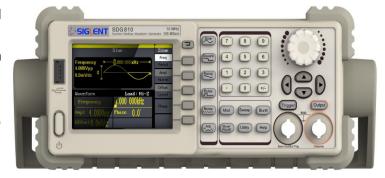
- ◆ DDS technology, Single-channel output
- ◆ 125MSa/s sample rate, 14bit vertical resolution.
- ◆ 5 types of standard output waveform, built-in 46 arbitrary waveforms(include DC)
- Complete set of modulation functions: AM, DSB-AM, FM, PM, FSK, ASK, PWM, Sweep, Burst
- Abundant input/output: waveform 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 dick and internal storage, facilitative files management.

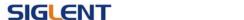
#### **Application fields:**

- 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	5 MHz	10 MHz	30 MHz
frequency	3 IVITIZ	TO WITH	30 IVITZ
Output channels	1		
Sample rate	125MSa/s		
Arbitrary waveform	401		
length	16kpts		
Frequency resolution	1μHz		
vertical resolution	14bits		
Waveform Sine, Square, Ramp, Pulse, Gaussian Noise. 46 built-in a waveforms(include DC)		e. 46 built-in arbitrary	
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  $5^{\circ}$ 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 ±5	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	DC~20kHz,1Vpp<0.2%	
distortion	DO-20K12,1Vpp>0.2/6	
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	10 waveforms
memory (10 in total)	10 wavelonis

Output Specification		
Amplitude	2mVpp~10Vpp(50Ω,≤10MHz)	
	2mVpp~5Vpp(50Ω,>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%	
<b>DSB-AM Modulation</b>		
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	



PM Modulation	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary
	(2mHz~20kHz)
Phase Deviation	0~360°,0.1°Resolution
FSK Modulation	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	50% duty-cycle square waveform(2mHz~50kHz)
ASK Modulation	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Modulation waveform	50%duty-cycle square waveform(2mHz~50kHz)
PWM Modulation	
Frequency	500μHz~20kHz
Modulation waveform	Sine, Square, Ramp, Arbitrary(except DC)
Sweep	
Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Туре	linear/logarithmic
Direction	Up/down
Sweep time	1ms~500s
Trigger source	Manual, external, internal
Burst	
Waveform	Sine, Square, Ramp, Pulse, Arbitrary(except DC)
Туре	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

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

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



### **General Specification**

Display	
Display type	3.5inch'TFT-LCD
Resolution	320×RGB×240
Color depth	24bit
Contrast Ratio	350:1(typical)
Luminance	300cd/m <sup>2</sup> (typical)
Power	(3)
Voltage	100~240 VAC <sub>RMS</sub> , 45~66Hz, CATII
	100~127 VAC <sub>RMS</sub> , 45~440Hz, CATII
Consumption	<30W
Fuse	1.25A,250V
Environment	
Temperature	Operation:0°C~40°C
	Storage:-20°C~60°C
Humidity range	Below +35°C:≤90% relative humidity
	+35°C~+40°C:≤60% relative humidity
Altitude	Operation: below 3,000 meters
	Storage: below 15,000 meters
Others	
Dimension	Width:229mm
	Height:105mm
	Depth:281mm
Weight	N.W: 2.6Kg
	G.W: 3.4Kg
IP protection	
IP2X	
<b>Calibration Cycle</b>	
1year	



#### **Purchase Information**

#### **Product Name**

#### SDG800 Series Function/Arbitrary Waveform Generator

#### Models:

SDG805 5MHz SDG810 10MHz SDG830 30MHz

#### **Standard Accessories**

- A Quick Start
- A Certification
- An CD(including EasyWave computer software system)
- A Power Cord that fits the standard of destination country
- A USB Cable

#### **Optional Accessories**

- BNC cable
- GPIB-USB Adapter



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