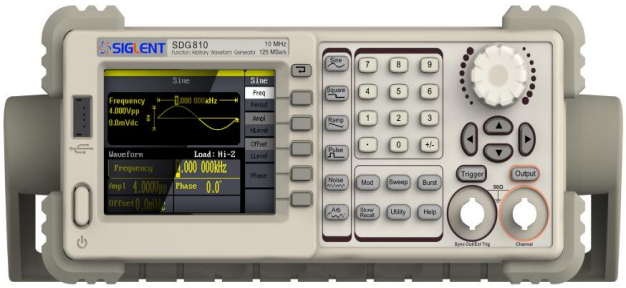
Data Sheet

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.

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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.

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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	1μHz		
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 (18ºC~28°C.
2. The temperature variation does not exceed 5℃.

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

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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

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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

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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)
Type	linear/logarithmic
Direct	Up/down
Sweep time	1ms~500s
Trigger source	Manual, external, internal
Burst	
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

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

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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^2(typical)
Power	
Voltage	100~240 $VAC_{RMS,}$ 50/60Hz
	100~120 $VAC_{RMS,}$ 440Hz
Consumption	<30W
Fuse	1.25A, 250V
Environment	
Temperature	Operation:0°C~40°C
	Storage:-20°C~60°C
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	

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Ordering Information

Product Name

SDG800 Series Function/Arbitrary Waveform Generator

Models:

SDG805 5MHz

SDG810 10MHz

SDG830 30MHz

Standard Accessories

- **A Quick Start**
- **A Calibration Certificate**
- **A Power Cord that fits the standard of destination country**
- **A USB Cable**

Optional Accessories

- **BNC cable**
- **GPIB-USB Adapter**

Contact SIGLENT

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