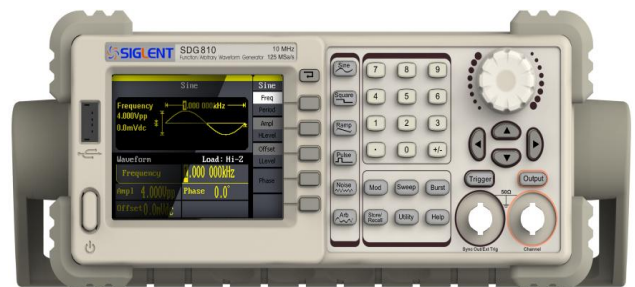


Data Sheet

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 μ 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 | 1 μ Hz ~ 5MHz | 1 μ Hz ~ 10MHz | 1 μ Hz ~ 30MHz |
| Square | 1 μ Hz ~ 5MHz | 1 μ Hz ~ 10MHz | 1 μ Hz ~ 10MHz |
| Pulse | 500 μ Hz ~ 5MHz | | |
| Ramp/Triangular | 1 μ Hz ~ 300kHz | | |
| Gaussian white noise | >5MHz (-3dB) | >10MHz (-3dB) | >30MHz (-3dB) |
| Arbitrary | 1 μ Hz ~ 5MHz | | |
| Resolution | 1 μ Hz | | |
| Accuracy | Within 90days \pm 50ppm within 1 year \pm 100ppm | | |
| Temperature coefficient | <5ppm/ $^{\circ}$ 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 |

| 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 |

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°C:≤90% relative humidity |
| | +35°C~+40°C:≤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 | |

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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