Quick Start

SDG1000 Series
Function/Arbitrary Waveform Generator

QS02010-E02A

Copyright

General Safety Summary

Carefully read the following safety precautions to avoid person injury and prevent damage to the instrument and any products connected to it. To avoid potential hazards, please use the instrument as specified.

Only qualified technician should perform service procedures

To Avoid Fire or Personal Injure

Use Proper Power Line
Use only the special power line of the instrument which approved by local state.

Ground the Instrument
The instrument grounds through the protective terra conductor of the power line. To avoid electric shock, the ground conductor must be connected to the earth. Make sure the instrument is grounded correctly before connect its input or output terminals.

Connect the Signal Wire Correctly
The potential of the signal wire is equal to the earth, so do not connect the signal wire to a high voltage. Do not touch the exposed contacts or components.

Look Over All Terminals' Ratings
To avoid fire or electric shock, please look over all ratings and sign instruction of the instrument. Before connecting the instrument, please read the manual carefully to gain more information about the ratings.

Not Operate with Suspected Failures
If you suspect that there is a damage of the instrument, please let a qualified service personnel check it.

Avoid Circuit or Wire Exposed Components Exposed
Do not touch exposed contacts or components when the power is on.

Do not operate in wet/damp conditions.

Do not operate in an explosive atmosphere.

Keep the surface of the instrument clean and dry.

Safety Terms and Symbols

Terms used on the instrument. Terms may appear on the instrument:

DANGER: Indicates an injury or hazard that may be immediately happen.

WARNING: Indicates an injury or hazard that may be not immediately happen.

CAUTIO: Indicates that a potential damage to the instrument or other property might occur.

Symbols used on the instrument. Symbols may appear on the instrument:

Hazardous Voltage

Protective Earth Ground

Warning

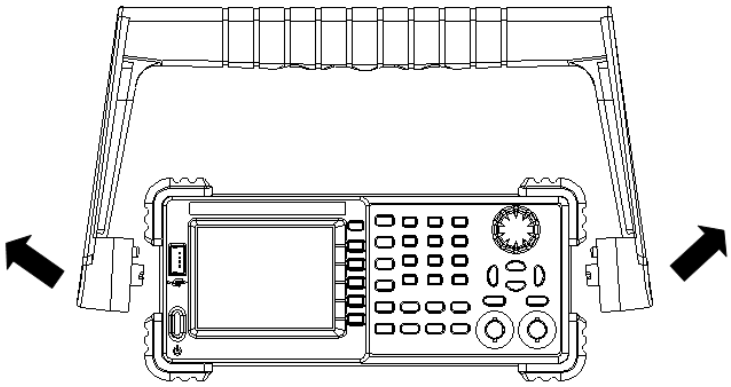
Earth Ground

Power Switch

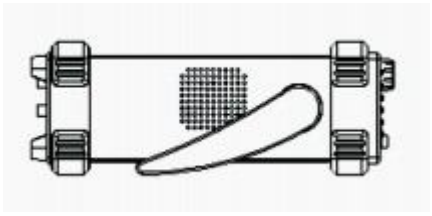
Content

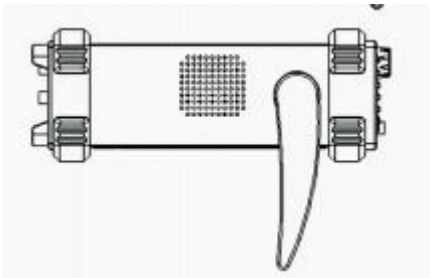
Adjustment Handle

When using the instrument, SDG1000 permits users to adjust the handle to a needed position which make it easier to operate and observe.

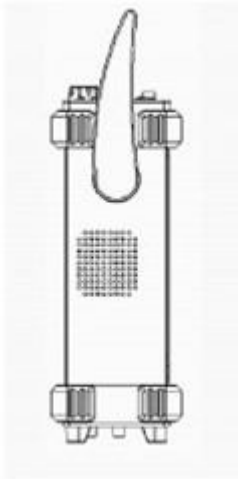


Adjustment Handle





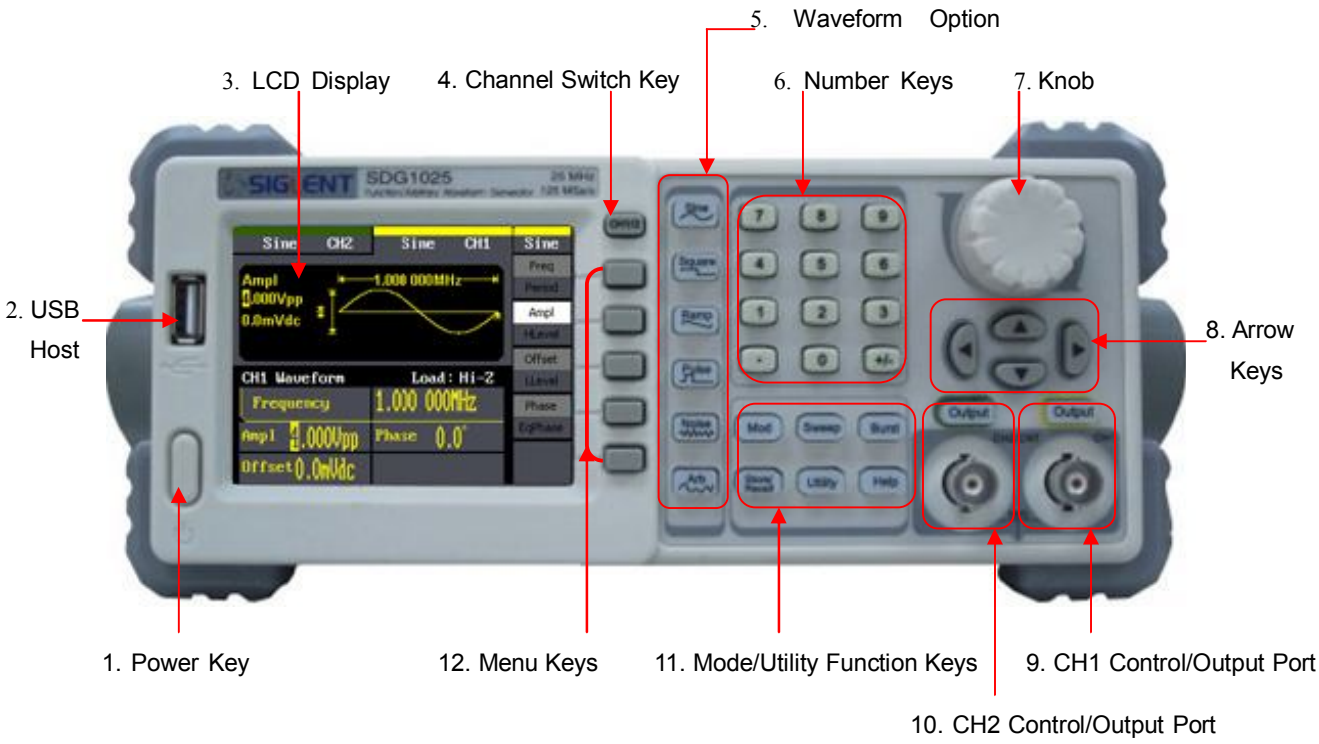
Horizontal Position



Carrying Position

The Front Panel

The picture below shows SDG1000 front panel composition:



1. **Power Key**
   This key is used to turn on/off the SDG1000. When the power key is off, the SDG1000 is under power off state.

2. **USB Host**
   SDG1000 supports USB disk of FAT format. It's used to read waveforms or status files from a U disk or save current instrument status to a U disk.

3. **LCD Display**
   SDG1000 has a 320*240 TFT color LCD display, which can display current function menu, parameter settings, system state, promptings and so forth.

4. **Channel Switch Key**
   This key is used to switch channel's display interface.

5. Waveform Option Area

Sine ----Sine Waveform

Provide sine waveform output and its frequency ranges from 1μHz to 50MHz.

- The backlight of the key lights when the key is being chosen.
- The “Frequency/Period”, “Amplitude/High level”, “Offset/Low level”, “Phase” of the sine waveform can be adjusted.

Square----Square Waveform

Provide square waveform output and its frequency ranges from 1μHz to 25MHz.

- The backlight of the key lights when the key is being chosen.
- The “Frequency/Period”, “Amplitude/High level”, “Offset/Low level”, “Phase” and “Duty” of the square waveform can be adjusted.

Ramp----Ramp Waveform

Provide frequency ranges from 1μHz to 25MHz ramp waveform output.

- The backlight of the key lights when the key is being chosen.
- The “Frequency/Period”, “Amplitude/High level”, “Offset/Low level”, “Phase” and “Symmetry” of the ramp waveform can be adjusted.

Pulse----Pulse Waveform

Provide frequency ranges from 1μHz to 300KHz pulse waveform output.

- The backlight of the key lights when the key is being chosen.
- The “Frequency/Period”, “Amplitude/High level”, “Offset/Low level”, “Pulse width/Duty” and “Delay” of the pulse waveform can be adjusted.

Noise----Noise Signal

Provide 50MHz bandwidth Gauss white noise output

- The backlight of the key lights when the key is being chosen.
- The “Variance” and “”Mean” of the noise signal can be adjusted.

Arb ----Arbitrary Waveform

Provide frequency ranges from 1μHz to 5MHz arbitrary waveform output.

- It can output 46 kinds of waveforms: Sinc, index rose, exponential decline, tangent, cotangent, inverse trigonometric, Guass and so on. Besides, it can output the arbitrary waveforms in the U disk.
- Users can on line edit (16Kpts) or edit through EsayWave arbitrary waveform and down load them to the instrument.
- The backlight of the key lights when the key is being chosen.

- The “Frequency/Period”, “Amplitude/High level”, “Offset/Low level”, “Phase” of the arbitrary waveform can be adjusted.

6. Number Keys

Those keys, including numbers from 0 to 9, radix points “.”, symbol keys “+/-”, are used to input parameters. Pay attention: when you need to input a negative, you should input a symbol “-” before you input the numbers.

7. Knob

It is used to increase (clockwise) or decrease (anticlockwise) current outstanding numerical value when setting parameters.

8. Arrow Keys

When using knob to set parameters, it is used to switch the place of numerical value.

When inputting a file name, it is used to move the position of cursor.

When saving or reading files, it is used to choose a position to save a file or choose a file to be read.

9. CH1 Control/Output Key

Output This key is used to turn on/off CH1 output.

BNC connector and its nominal output impedance is 50Ω

When turn on Output (backlight is light), the connector output waveform with CH1 current scheme.

10. CH2 Control/Output Key

Output This key is used to turn on/off CH2 output.

BNC connector and its nominal output impedance is 50Ω

When turn on Output (backlight is light), the connector output waveform with CH2 current scheme.

11. Mode/Utility Function Keys

Mod **Modulate**

This key is used to output modulated waveforms and provide several kinds of mode modulate and digital modulate manners. It generates AM, AM-DSB, FM, PM, ASK, FSK and PWM modulated signals.

- It supports “Internal” and “External” modulate source.
- The key backlight lights when the function key is being chosen.

Sweep **Sweep**

- This key is used to generate “sine waveform”, “square waveform”, “sawtooth waveform” and “arbitrary waveform” sweep signals.

- It supports “Linear” and “Log” two kinds of sweep manners.
- It supports “Internal”, “External” and “Manual” 3 kinds of trigger source.
- The backlight of the key lights when the key is being chosen.

Burst **Burst**

This key is used to generate “sine waveform”, “square waveform”, “sawtooth waveform” and “arbitrary waveform” burst output.

- It supports “NCycle”, “Gated” and “Infinite” 3 kinds of burst modes.
- Noises also can be used to generate gating burst.
- It supports “Internal”, “External” and “Manual” 3 kinds of trigger source.
- The backlight of the key lights when the key is being chosen.

Store/Recall **Save and Recall Function**

Through this key users can save/recall instrument state or arbitrary waveform datum edited by users.

- As it supports file management system, users can do normal file operations.
- Besides a nonvolatile memory (C disk) inside, a U disk (D disk) can also be outside connected.
- The backlight of the key lights when the key is being chosen.

Utility **Utility Function and System Setting**

This key is used to set some system parameters and check version information.

- The backlight of the key lights when the key is being chosen.

Help **Help**

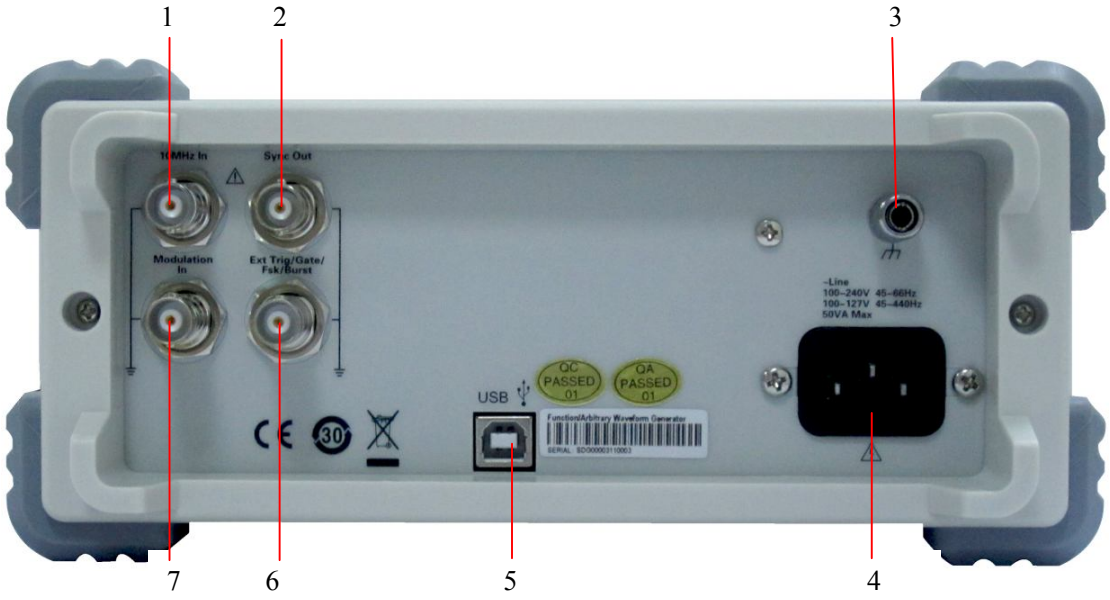
Press this key to obtain build-in help information about the product.

- The backlight of the key lights when the key is being chosen.

12. Menu Keys

Those keys are corresponding one by one to the left menu, press any key to activate corresponding menu.

The Back Panel



1. **10MHz Clock Input Port**
   If the instrument uses external clock source, the connector accept an external 10MHz clock source.

2. **Synchronization Output Port**
   When the synchronization is on, the port can output TTL signal with the same frequency.

3. **Earth Terminal**
   It adopts special earth terminal.

4. **AC Power Supply Input**
   SDG1000 can input two different kinds of specification AC power supply.
   AC power: 100—240V, 45—66Hz or 100—127V, 45—440Hz;
   Fuse: 1.25A, 250V

5. **USB Device**
   Connect the instrument to a computer through the port, and use software EasyWave to control the SDG1000.

6. [Ext Trig/Gate/FSK/Burst]

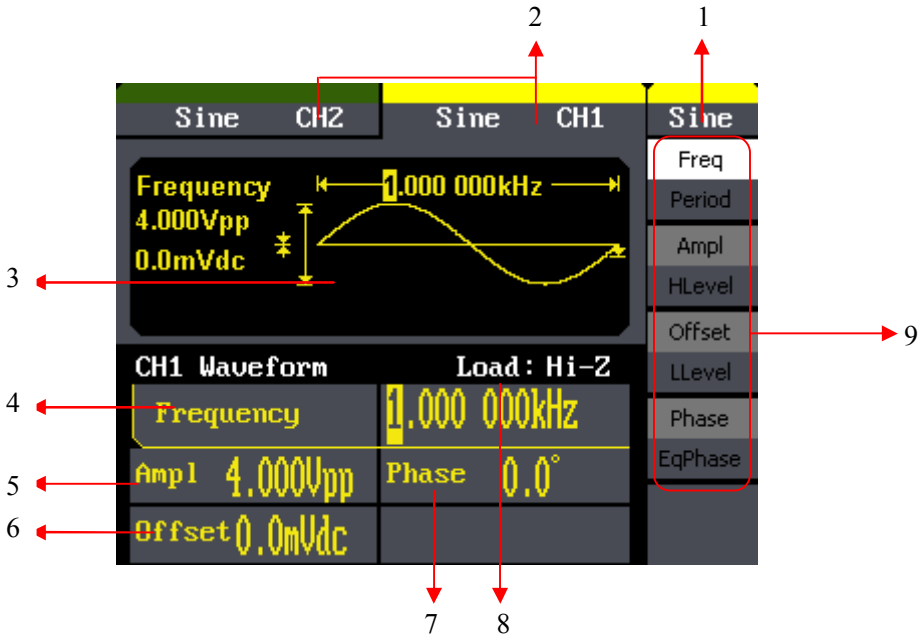
- Sweep/Burst trigger signal input port of external trigger.
- Sweep/Burst trigger signal output port of internal/manual trigger
- Burst gating trigger input port;
- ASK/FSK external modulation signal input port.

7. [Modulation In]

AM, FM, PM external modulation signal input port;

User Interface

SDG1000 can only display one channel's parameters and waveform. The picture below shows the interface when CH1 choosing sine waveform. The interface will have some difference when current function is different.



1. **Current Function**
   Display current function name. For example: "sine" shows that sine waveform function is being chosen.

2. **Channel State**
   CH1 and CH2 display area which shows the current channel's choosing state.

3. **Waveform Display Area**
   It shows each channel's current waveform.

4. **Frequency**
   It shows each channel's current waveform's frequency. After press corresponding Freq menu, use number keys or knob to change the parameter value.

5. **Amplitude**
   It shows each channel's current waveform's amplitude. After press corresponding Ampl menu, use number keys or knob to change the parameter value.

6. Offset

It shows each channel's current waveform's DC offset. After press corresponding Offset menu, use number keys or knob to change the parameter value.

7. Phase

It shows each channel's current waveform's phase value. After press corresponding Phase menu, use number keys or knob to change the parameter value.

8. Load

It shows each channel's load scheme.

High Resistance: display "Hi-Z" Load: display default "50Ω"

9. Menu

It shows the corresponding operation menu of the current function which is being chosen. For example: the picture above shows the function menu of "Sine" waveform.

Using Built-In Help System

To obtain build-in help information of the product, please press Help key first, then use arrow keys to choose the help item you want, last press Select to obtain help information.

Press Help key to open the common help information below:

1. View the instrument information.
2. Basic waveform output.
3. Arbitrary waveform output.
4. Generate a modulated waveform.
5. Sweep output.
6. Burst output.
7. Storage management.
8. Generate a DC-only signal.
9. Synchronize multiple instruments.
10. Reset the instrument to its default state.
11. Technical support.

Contact SIGLENT

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