Quick Start

SDG5000 Series
Function/Arbitrary Waveform Generator

QS02050-E02A

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General Safety Summary

Carefully read the following safety precautions to avoid any personal injuries or damages to the instrument and any products connected to it. To avoid potential hazards, please use the instrument as specified.

Only the qualified technician can service the instrument.

Avoid fire or personal Injure

Use proper power line

Use only the special power line which approved by local state.

Ground the Instrument

The instrument is grounded 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 connecting 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.

Observe all terminal ratings

To avoid fire or electric shock, please observe all ratings and sign instruction on the instrument. Before connecting the instrument, please read the manual carefully to gain more information about the ratings.

Do not operate with suspected failures

If you suspect that the product is damaged, please let a qualified service personnel check it.

Avoid circuit or wire exposure

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 immediately happen.

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

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

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

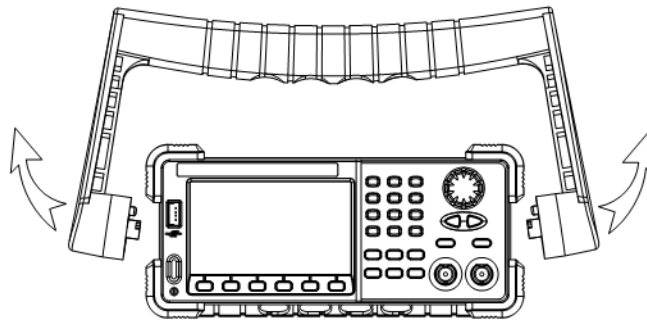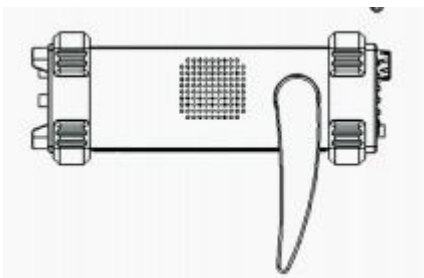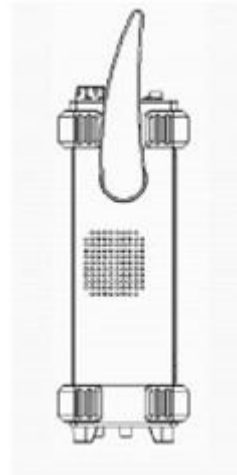| Hazardous Voltage	Protective Earth Ground	Warning	Chassis Ground	Power Switch

Content

Adjust the Handle

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

Adjust the Handle
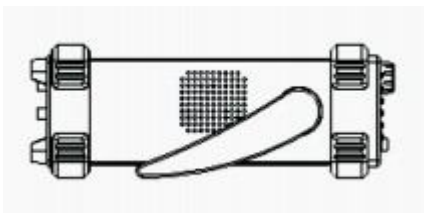
Horizontal Position

Carrying Position
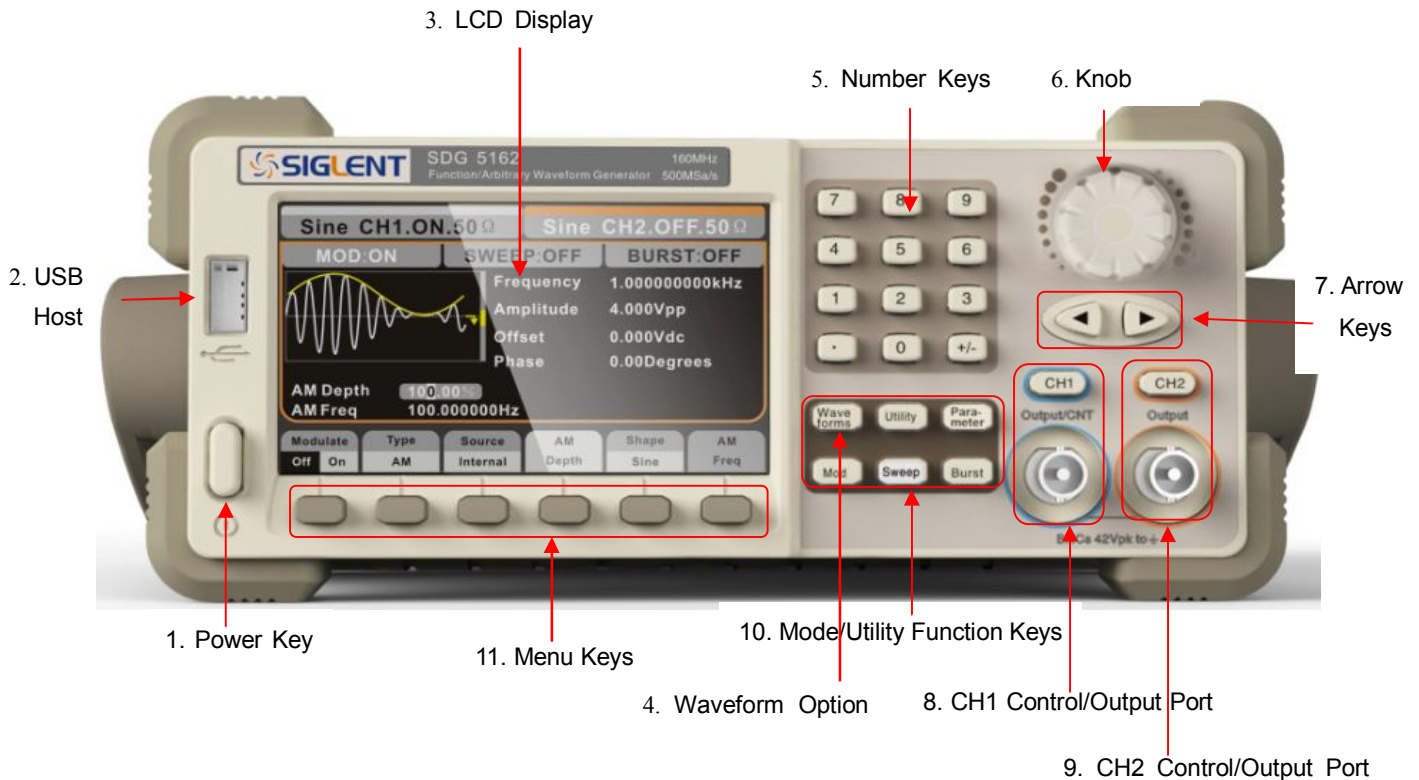
The Front Panel

The picture below shows SDG5162 front panel composition:

1. Power Key

This key is used to turn on/turn off the SDG5162. When the power key is off, the SDG5162 is in the power off state.

2. USB Host

SDG5162 supports USB disk of FAT format. It's used to read waveforms or status files from a U disk or to store the current state of the instrument to the U disk.

3. LCD Display

SDG5162 has a 4.3inch'TFT-LCD display, which can display current function menu, parameter settings, system state, promptings and so forth.

4. Waveform Option

Waveforms ----Sine

Provide sine waveform output which ranges from 1μHz to 160MHz.

- The key backlight will brighten when the key is selected.
- The "Frequency/Period", "Amplitude/High level", "Offset/Low level", "Phase" of the sine waveform can be adjusted.

Waveforms ----Square

Provide square waveform output which ranges from 1μHz to 50MHz.

- The key backlight will be brighten when the key is selected..
- The "Frequency/Period", "Amplitude/High level", "Offset/Low level", "Phase" and "Duty" of the square waveform can be adjusted.

[Waveforms] ----Ramp

Provide ramp waveform output which ranges from 1µHz to 4MHz.

- The key backlight will be brighten when the key is selected..

- The "Frequency/Period", "Amplitude/High level", "Offset/Low level", "Phase" and "Symmetry" of the ramp waveform can be adjusted.

[Waveforms] ----Pulse

Provide pulse waveform output which ranges from 1µHz to 40MHz .

- The key backlight will be brighten when the key is selected.

- The "Frequency/Period", "Amplitude/High level", "Offset/Low level", "Pulse width/Duty" ,"Rise/Fall" and "Delay" of the pulse waveform can be adjusted.

[Waveforms] ----Noise

Provide gauss white noise output with a bandwidth of 100MHz

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

- The "Variance" and ""Mean" of the noise signal can be adjusted.

Waveforms ---- Arb

Provide arbitrary waveform output which ranges from 1µHz to 40MHz

- It can output 36 kinds of waveforms: Cardiac, Gauspuls, ExpRise and ExpFall Etc. Besides, it can output the arbitrary waveforms in the U disk.

- Users can edit arbitrary waveform through EasyWave and down load them to the instrument.

- The key backlight will be brighten when the key is selected.

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

5. Number Keys

Those keys, including numbers from 0 to 9, radix points ".", symbol keys "+/-", are used to input parameters. Note ：To enter a negative number, you need to enter a symbol "-" before.

6. Knob

It is used to increase (clockwise) or decrease (anticlockwise) current outstanding numerical value when setting parameters; to switch of characters in the soft keyboard when inputting a file name.

7. 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.

8. CH1 Control/Output Key

CH1 This key is used to turn on/off CH1 output,set load,polarity and Eqphse.

 BNC connector and its nominal output impedance is 50Ω

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

9. CH2 Control/Output Key

CH2 This key is used to turn on/off CH2 output, set load,polarity and Eqphse.

BNC connector and its nominal output impedance is 50Ω

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

10. 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, DSB-AM,FM, PM, ASK, FSK and PWM modulated signals.

- It supports "Internal" and "External" modulate source.

  The key backlight will be brighten when the key is selected.

Sweep ------ **Sweep**

This key is used to generate "sine waveform", "square waveform", "ramp 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 key backlight will be brighten when the key is selected.

Burst ------ **Burst**

This key is used to generate "sine waveform", "square waveform", "ramp waveform" "pulse waveform", and "arbitrary waveform" burst output.

- It supports "NCycle", "Gated" and "Infinite" 3 kinds of burst

modes.

- Noises can also be used to generate gating burst.

- It supports "Internal", "External" and "Manual" 3 kinds of trigger source.

- The key backlight will be brighten when the key is selected.

[Parameter] ------**Parameter**

To set parameters，users can switch directly to the interface

- The key backlight will be brighten when the key is selected.

[Utility] ------**Utility function and System setting**

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

- The key backlight will be brighten when the key is selected..

- Press this key and then press the help softkey to obtain build-in help information about the product.

- users can save/recall instrument state or arbitrary waveform datum edited by users.

11. Menu Keys

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

The Back Panel
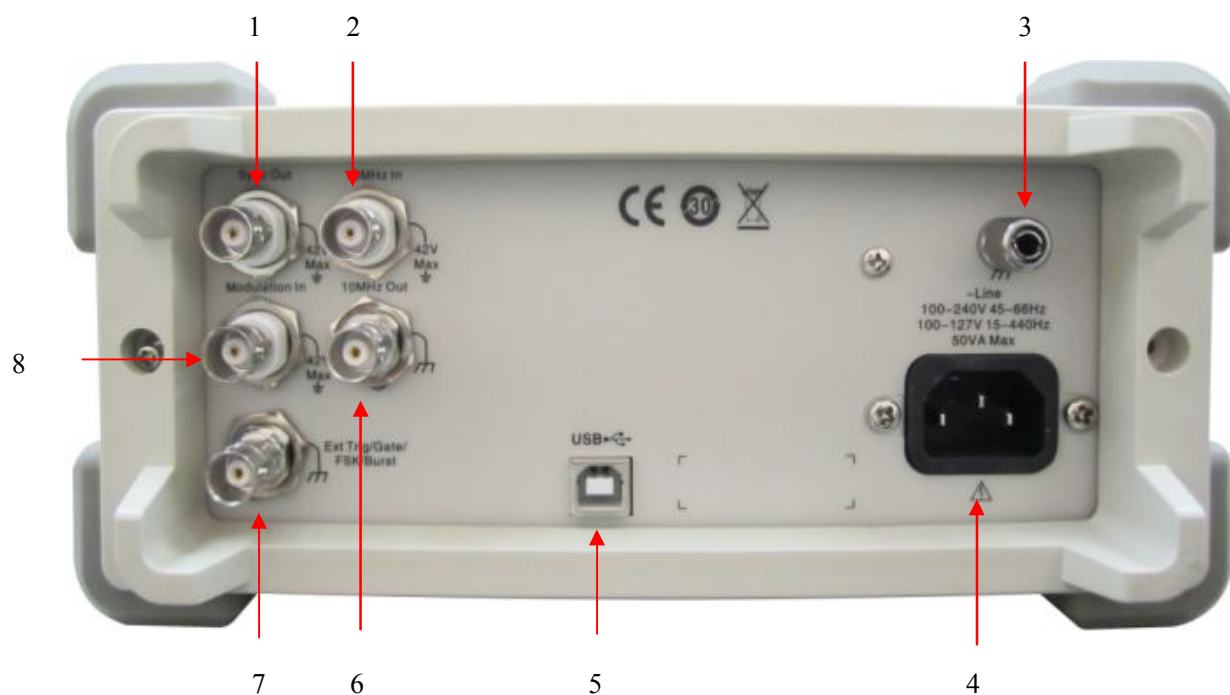
1. Synchronization Output Port

When the synchronization is on, the port can output TTL signal with the same frequency.

2. 10MHz Clock Input Port

If the instrument uses external clock source, the connector accepts an external 10MHz clock source.

3. Earth Terminal

It adopts special earth terminal.

4. AC Power Supply Input

SDG5162 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 SDG5162.

6. 10MHz Clock Output Port

The port can output the internal 10MHz Clock signal.

7. [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;

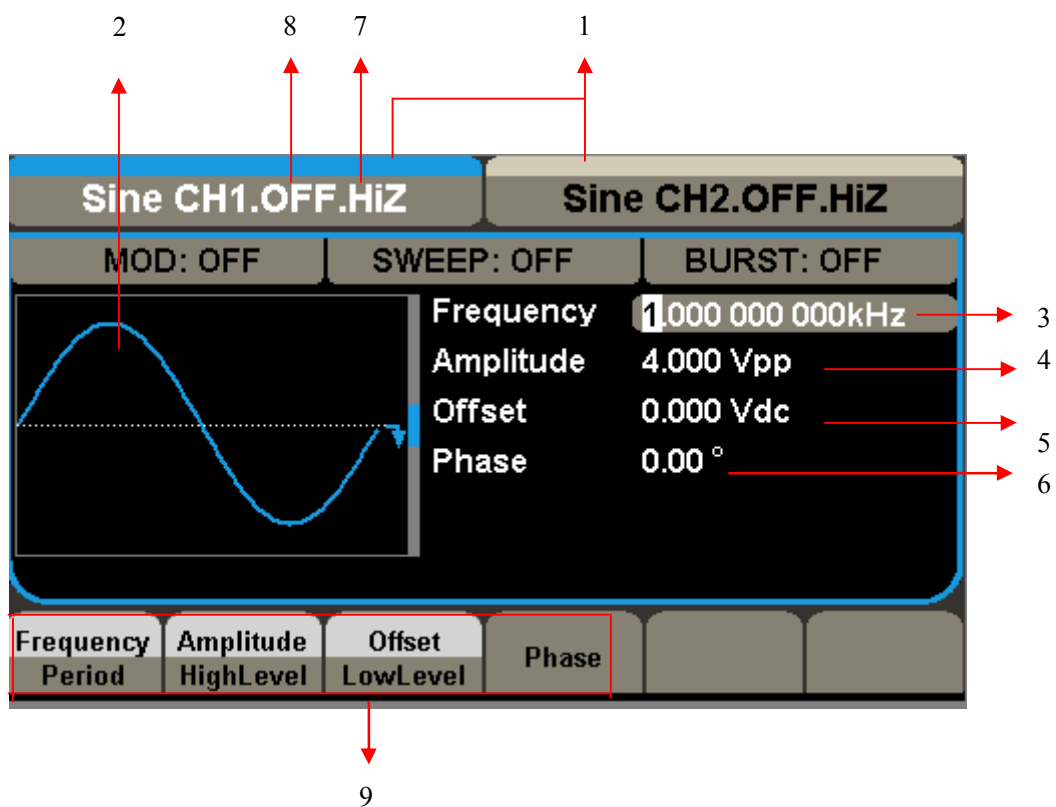- ASK/FSK external modulation signal input port.

8. [Modulation In]

AM, FM, PM external modulation signal input port.

User Interface

SDG5162 can only display parameters and waveform of a channel. The picture below shows the interface when CH1 choosing sine waveform. The interface will have some difference when current function is different.

1. Channel States

CH1 and CH2 display area which shows the current channel of the selected state

2. Waveform Display Area

It shows each channel of the currently selected waveform

3. Frequency

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

4. Amplitude

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

5. Offset

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

6. Phase

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

7. Load

It shows each channel's load scheme.

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

8. Output

It shows each channel's output state.

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 Utility key first, and then press the help softkey,use arrow keys to choose the help item you want, finally press Select to obtain help information.

Press Utility key and then press the Help key to open the common help information below:

1. View System Information

2. Basic waveform output

3. Arbitrary waveform output.

4. DC signal output

5. Generating a Modulated waveform.

6. Sweep function on waveform output

7. Burst function on waveform output.

8. Memory management

9. How to synchronize multiple SDG5000.

10. Restoring factory settings.

11. Technical Support Contact Information.

Contact SIGLENT

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