UNILAB®

POWERING POSSIBLE



techsupport@philipharris.co.uk

# General Warranty

The power signal generator is guaranteed for a period of two years from the date of delivery to the customer. This warranty does not apply to defects resulting from the action of a user such as misuse, improper wiring, any operations outside of its specification, improper maintenance or repair, or unauthorized modification. Our liability is limited to repair or replacement of the product. Any failure during the warranty period should be referred to Customer Services. In the event of a fault, apart from replacing the instrument fuse in the IEC socket, the power supply should be referred to the Philip Harris recommended repair agent.

Please contact Customer Services or techsupport@philipharris.co.uk for advice

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# 1. General Safety Requirements

Before use, please read the following safety precautions to avoid any possible bodily injury and to prevent this product or any other connected products from damage. To avoid any contingent danger, ensure this product is only used within the ranges specified.

Only a qualified person should perform internal maintenance.

To avoid Fire or Personal Injury:

- **Use Proper Power Cord.** Use only the power cord supplied with the product and certified to use in your country.
- **Product Grounded.** This instrument is grounded through the power cord grounding conductor. To avoid electric shock, the grounding conductor must be grounded. The product must be grounded properly before any connection with its input or output terminals.
- **Do not intentionally short circuit the terminals.** The device will protect against short circuits but to protect the longevity of the device the protection should not be intentionally tripped.
- **Check all Terminal Ratings.** To avoid fire or shock hazard, check all ratings and markings on this product. Refer to the user manual for more information about ratings before connecting to the instrument.
- **Do not operate without covers**. Do not operate the instrument with covers or panels removed.
- **Use the Proper Fuse.** Use only the specified type and rating fuse for this instrument.
- **Avoid exposed circuit**. Be careful when working on exposed circuitry to avoid risk of electric shock or other injury.
- **Do not operate if any damage.** If you suspect damage to the instrument, have it inspected by qualified service personnel before further use.
- **Use your instrument in a well-ventilated area.** Please keep well-ventilated and inspect the intake and fan regularly.
- **Do not operate in damp conditions.** To avoid short circuiting to the interior of the device or electric shock, please do not operate in a humid environment.
- **Do not operate in an explosive atmosphere.** To avoid damages to the device or personal injuries, it is important to operate the device away from an explosive atmosphere.
- **Keep product surfaces clean and dry.** To avoid the influence of dust or moisture in air, please keep the surface of device clean and dry.

# 2. Safety Terms and Symbols

**Symbols on the product**. The following symbols may appear on the product:

 Hazardous Voltage

 Refer to Manual

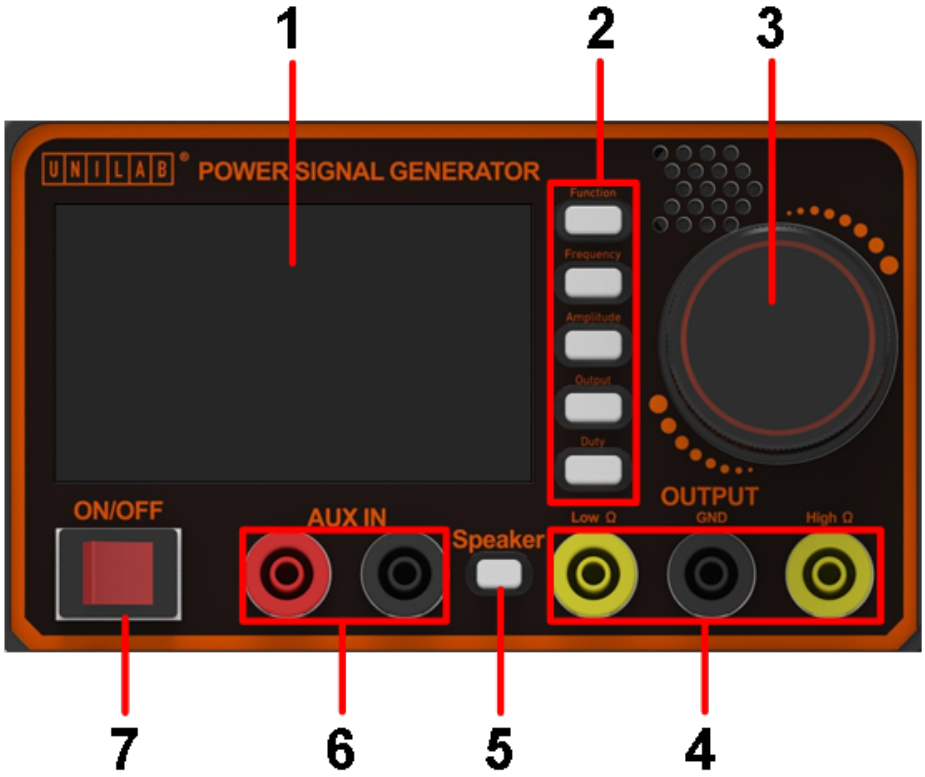
 Protective Earth Terminal

 Chassis Ground

 Public Ground

# 3. Panel Review

## 3.1 Front panel




1 **Display Screen**
- Display the user interface.

2 **Menu Selection keys**
- Includes 5 keys to activate the corresponding menu.

3 **Control Dial**
- Rotary dial to change the currently selected value.

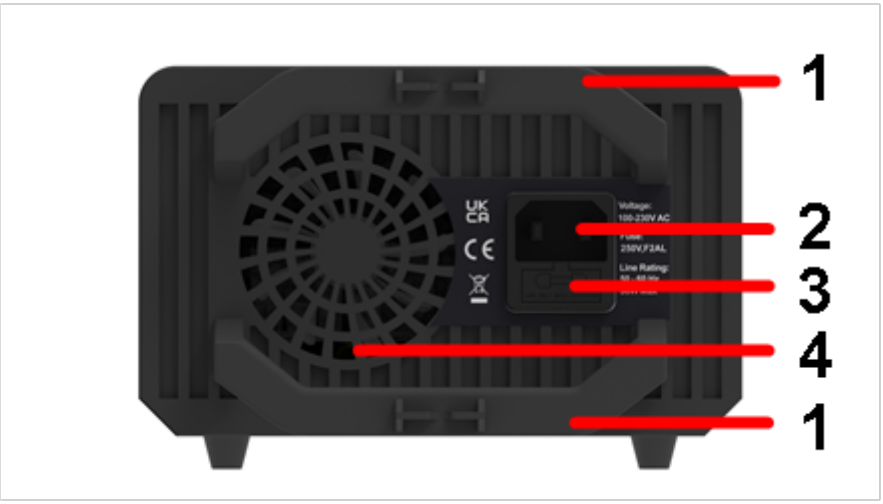
4 **Output Port**
- Low/high impedance output port.

5 **Speaker Key**
- Press it to enable/disable the speaker.

6 **Input Port**
- Auxiliary waveform input port.

7 **ON/OFF Key**
- Press it to enable/disable the speaker.

## 3.2 Rear panel




1 **Handle/Power Cord Holder**

- Can be used to store the power cable or as a carry handle.

2 **AC Power Input**

- AC power input. Ensure earth is connected when powering the device.

3 **Fuse Holder**

- Mains fuse holder, see specification for fuse details.

4 **Air Vent**

- Air vent allows cooling using an internal fan. Do not obstruct this vent.

# 4. General Inspection

## 4.1 Product Inspection

After you get a new power signal generator, it is recommended that you should make a check on the instrument according to the following steps:

1. Check whether there is any damage caused by transportation.

If it is found that the packaging carton or the foamed plastic protection cushion has suffered serious damage, do not throw away packaging until the complete device and its accessories succeed in the electrical and mechanical property tests.

2. Check the Accessories

The supplied accessories have been already described in "Appendix A: Accessories" of this Manual. You can check whether there is any loss of accessories with reference to this description. If it is found that there is any accessory lost or damaged, please contact our Tech Support team.

3. Check the Complete Instrument

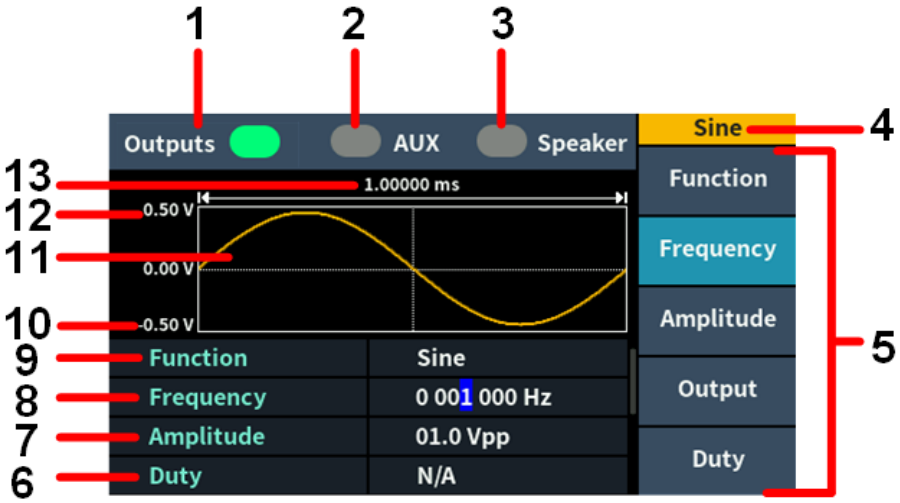
If upon delivery of the device it is found that there is damage to the device, or the device cannot work normally, please contact our Tech Support team where we can look to repair or replace the device.

## 4.2 Power Inspection

The product should be tested before use to ensure proper functionality. Using the power cord provided with the device, connect the power supply to AC power. Ensure the device is connected to earth. Press the power switch and the display screens should illuminate.
Press the power button on the front panel, the buzzer will sound once, and the screen will light up.

# 5. Device Operation

## 5.1 User Interface




1 **Waveform Output**
- Enable/disable the waveform output.

2 **Auxiliary Waveform**
- Enable/disable the the auxiliary waveform input.

3 **Speaker Output**
- Enable/disable the speaker.

4 **Waveform**
- Display the current waveform.

5 **Menu**
- Set the corresponding parameter.

6 **Duty**
- When "N/A" is displayed, it means the parameter is not available; when a numerical value is displayed, the parameter can be set.

7 **Amplitude**
- Set the waveform amplitude.

8 **Frequency**
- Set the waveform frequency.

9 **Function**
- Display the current waveform.

10 **Low Level**
- The current waveform's low level.

11 **Waveform Area**
- Show the current waveform.

12 **High Level**
- The current waveform's high level.

13 **Period**
- The current waveform's period.

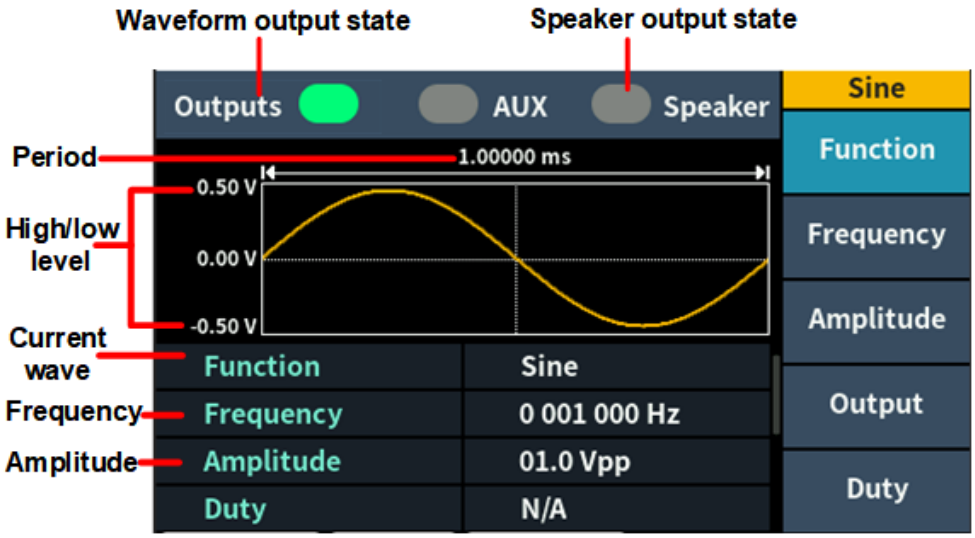
## 5.2 Waveform Setting

Sine, square, ramp and pulse can be set and output. The waveform is different and the parameters that can be set are different.

### 5.2.1 Output Sine Wave

Press 

to switch to sine waveform interface. The Sine waveform parameters can set by operating the Sine setting menu on the right.
The sine wave menu includes: Frequency, Amplitude.




### Set Frequency

Press 

to select Frequency， the selected menu item is highlighted.

Turn the knob to increase or decrease the value at the cursor. Press the 

multiple time can move the cursor.

## Set Amplitude

Press 

to select Amplitude， the selected menu item is highlighted.

Turn the knob to increase or decrease the value at the cursor. Press the 

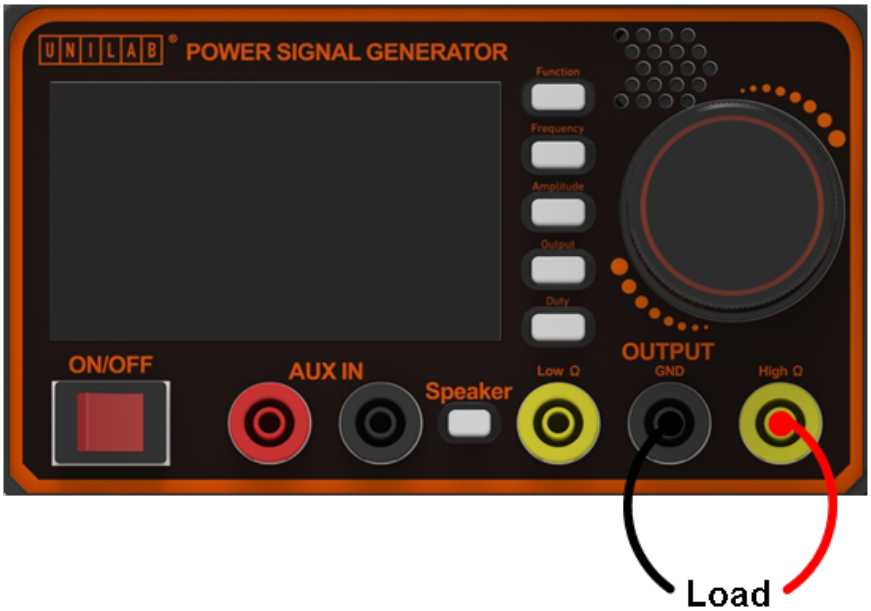
multiple time can move the cursor.

## Set Waveform Output

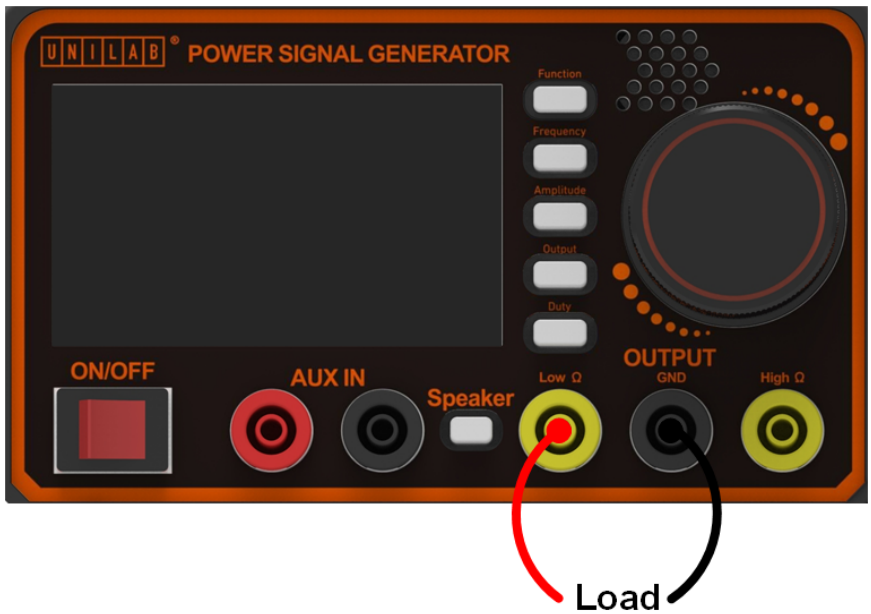
Press 

to select Output， the selected menu item is highlighted.

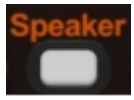
- Outputs displayed in green indicates enable waveform output.
  Please make the connections as shown in the diagram below.




- Outputs displayed in gray indicates disable waveform output.
  Please make the connections as shown in the diagram below.




## Set Speaker

Press 

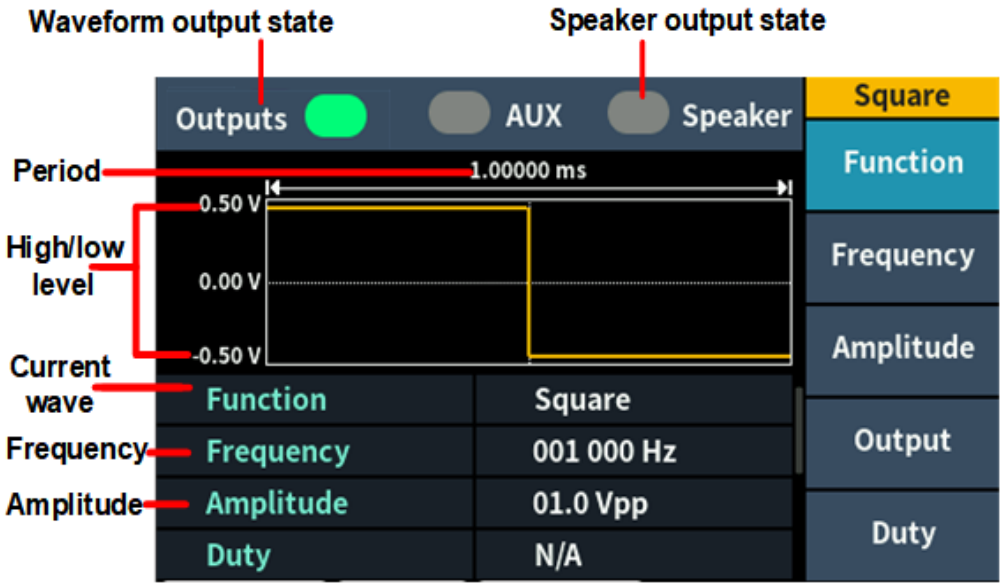
can enable/disable the speaker, when Speaker displayed in green indicates speaker output.

## 5.2.2 Output Square Wave

Press 

to switch to square waveform interface. The Square waveform parameters can set by operating the Square setting menu on the right.
The square wave menu includes: Frequency, Amplitude.

To set the Frequency, Amplitude, Waveform Output, Speaker Output, please refer to Output Sine Wave on page 10.

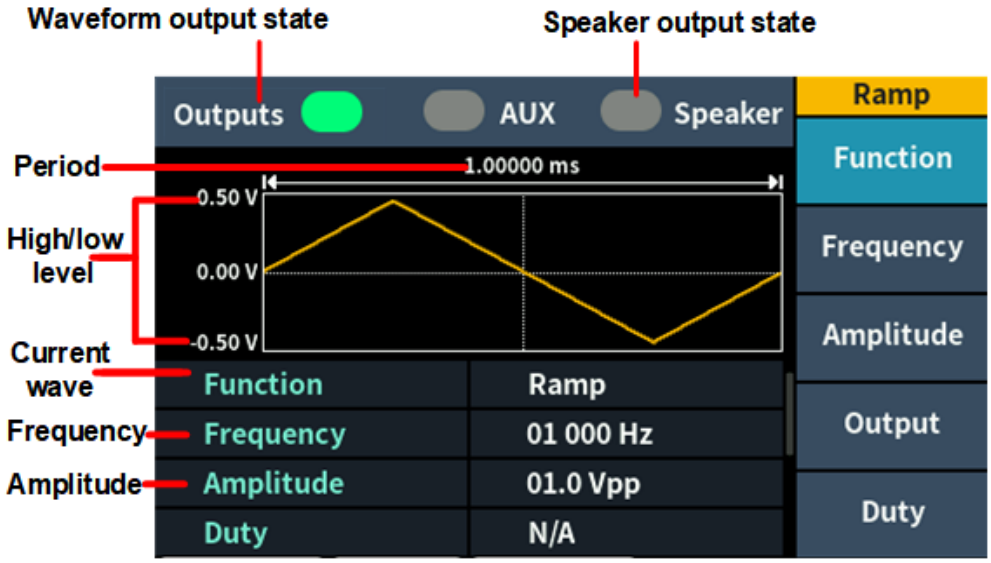


### 5.2.3 Output Ramp Wave

Press 

to switch to ramp waveform interface. The Ramp waveform parameters can set by operating the Ramp setting menu on the right.
The ramp wave menu includes: Frequency, Amplitude.

To set the Frequency, Amplitude, Waveform Output, Speaker Output, please refer to Output Sine Wave on page 10.

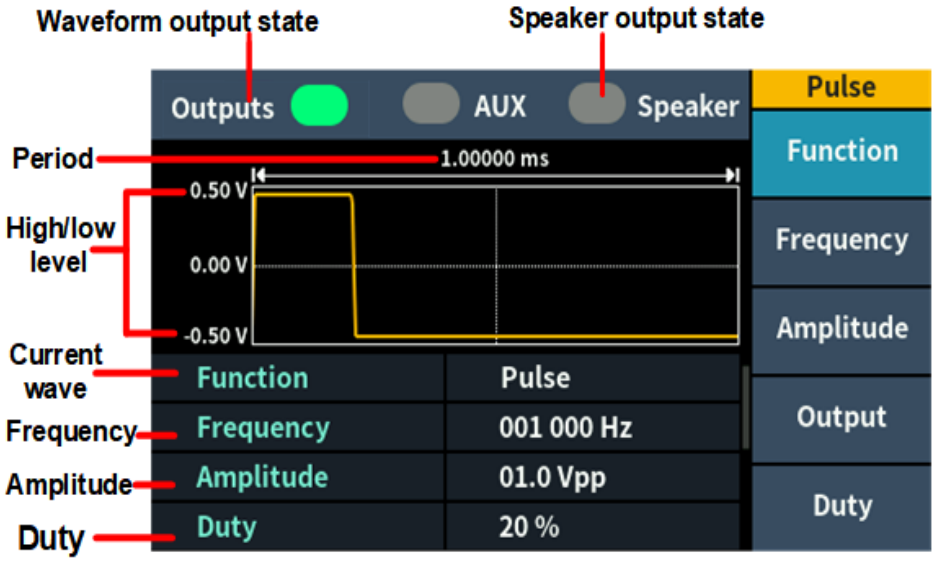



### 5.2.4 Output Pluse Wave

Press 

to switch to pluse waveform interface. The Pluse waveform parameters can set by operating the Pulse setting menu on the right.
The pulse wave menu includes: Frequency, Amplitude, Duty.

To set the Frequency, Amplitude, Waveform Output, Speaker Output, please refer to Output Sine Wave on page 10.



### Set Duty

Press 

to select Duty， the selected menu item is highlighted. Turn the knob to increase or decrease the value at the cursor. Press the 

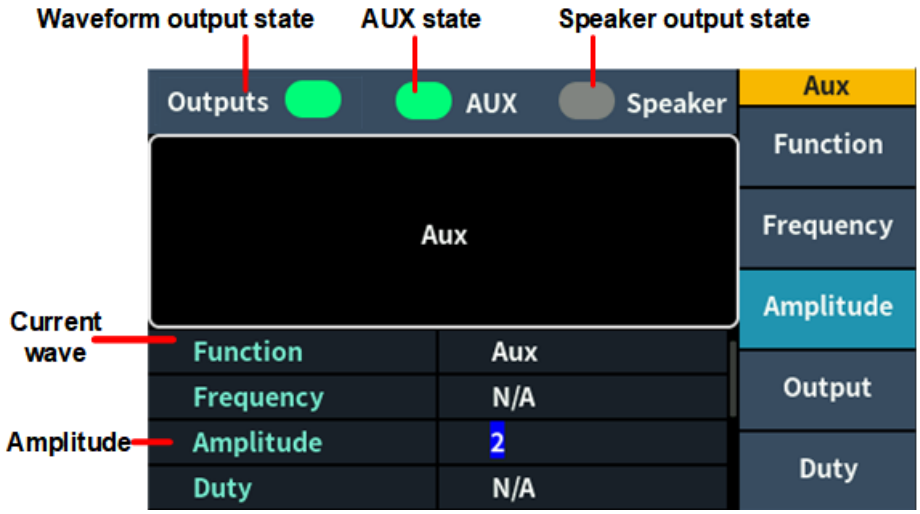
multiple time can move the cursor.

## 5.3 Set AUX Wave

Press 

to switch to AUX waveform interface. The AUX waveform parameters can set by operating the AUX setting menu on the right.
The aux wave menu includes: Frequency.

To set the Frequency, Amplitude, Waveform Output, Speaker Output, please refer to Output Sine Wave on page 10.




**Note:**
The speaker volume can only be adjusted when the output is in low impedance mode. The corresponding amplitude and volume amplification factors are shown in the table below.

# 6. Specification

| | |
|---|---|
| **High impedance Output** | |
| **Frequency Characteristic** | |
| Standard Waveform | Sine, Square, Ramp, Pulse, AUX |
| Sample Rate | 125 MSa/s |
| Resolution | 14 bits |
| Sine wave | 1 Hz ~ 1 MHz |
| Square wave | 1 Hz ~ 400 kHz |
| Ramp wave | 1 Hz ~ 400 kHz |
| Pulse wave | 1 Hz ~ 400 kHz |
| Frequency resolution | 1 Hz |
| **Amplitude Characteristics** | |
| Output amplitude | High: 100mVpp ~ 20Vpp |
| **Mechanical Characteristics** | |
| Dimension | 230mm(Length)*105mm(Height)*160mm(Width) |
| Weight | Approx. 1.3kg |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# 7. Troubleshooting

- **The instrument is powered on but no display.**
  - Check the power is connected properly.
  - Check if the fuse is in good condition or replace it if necessary.
  - Restart the device and ensure earth is connected.
  - If the issue persists then contact our tech support team

- **The output is abnormal**
  - Reset the device by turning the power off and on.
  - Measure the output voltage and check if it matches the set voltage level.
  - If the issue persists then contact our tech support team.

# 8. Appendix

## 8.1 Appendix A: Accessories


- Power cord
- User manual
- Fuse

## 8.2 Appendix B: General Care and Cleaning

**General Care**

Do not store or leave the instrument where the liquid crystal display could be exposed to direct sunlight for long periods of time.

Caution: To avoid any damage to the instrument, do not expose it to any sprays, liquids, or solvents.

**Cleaning**

Inspect the instrument as often as operating conditions require. To clean the instrument exterior, perform the following steps:

- Wipe the dust from the instrument surface with a soft cloth. Take care not to scratch the transparent LED protection screen when cleaning.
- Disconnect power before cleaning your instrument. Clean the instrument with a damp soft cloth (not dripping with water). It is recommended to clean with soft detergent or fresh water. To avoid damage to the instrument, do not use any corrosive chemical cleaning agents.
- Before re-applying power ensure the equipment is completely dry to avoid any electric shock hazard because of residual moisture.