PSG 9080

Programmable signal generator

joy-it

1. TABLE OF CONTENTS

1. GENERAL INFORMATION

Dear customer,
thank you very much for choosing our product.
In the following, we will introduce you to what to observe while starting up and using this product.
Should you encounter any unexpected problems during use, please do not hesitate to contact us.

The PSG9080 function/arbitrary waveform generator can output basic waveforms (sine wave, square wave, triangle wave, pulse wave and custom waveforms) from one of the channels individually or both channels simultaneously. At start-up, the two channels are configured to output a sine waveform with a frequency of 10kHz and an amplitude of 5Vpp by default. Users can configure the unit to output different basic waveforms.

The PSG9080 has these functions: Amplitude, frequency, phase modulation, amplitude shift keying, frequency shift keying, phase-shift keying, pulse width modulation and burst function. It can measure the frequency, period and length of input signals and count the periods. It also has a sampling mode and a voltage control mode.

The button layout and 3.5" colour LCD are intuitive and easy to use. You can save several settings in groups so you can load them quickly. The menu can be set in German, English and French.

2. SAFETY INSTRUCTIONS

Please observe the following safety instructions before operating the unit in order to avoid damage to the unit and the connected devices, as well as injuries!

The unit is operated with a dangerous voltage, Never open the casing when it is connected to the power supply. There is a risk of electric shock!

To avoid short-circuiting or electric shock, only use a suitable mains cable.

Prevent electrostatic discharges.

Do not supply power to the unit if any connections, wires or components are exposed.

Do not operate if there is suspected failure or damage to the unit.

Do not operate the unit without covers or with screens removed.

Overvoltages, e.g. from a lightning strike, can damage the unit and cause electric shocks.

Never use the unit in humid, very dusty environments or near open fire or chemicals.

Operate the unit only at an ambient temperature between 10 °C and 50°C.

Make sure that the unit is sufficiently ventilated during operation to avoid overheating. Do not block the ventilation slots or insert any objects.

Check the unit when unpacking it for the first time and before operating it. If there is any damage to the unit, please contact your supplier or us directly.

3. OVERVIEW FRONT AND REAR SIDE
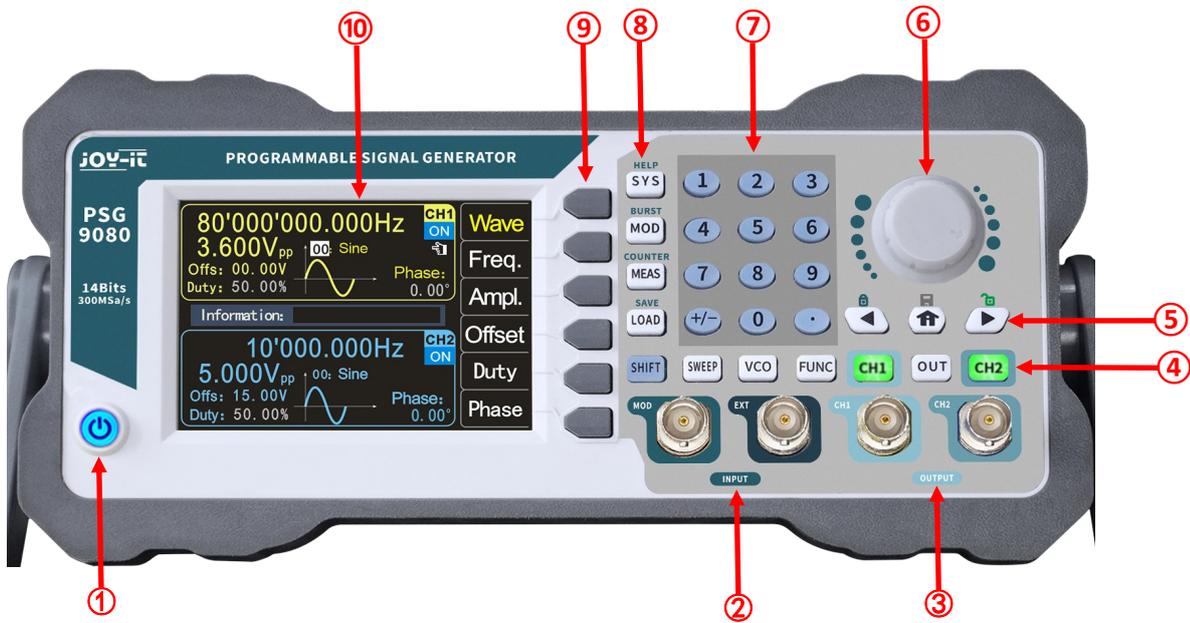
Number	Description	Number	Description
1	On-off button	6	Rotary encoder + button
2	Signal inputs	7	Numeric keypad
3	Signal outputs	8	Function keys
4	Channel control buttons	9	Menu keys
5	Direction buttons, Home button	10	LC Display
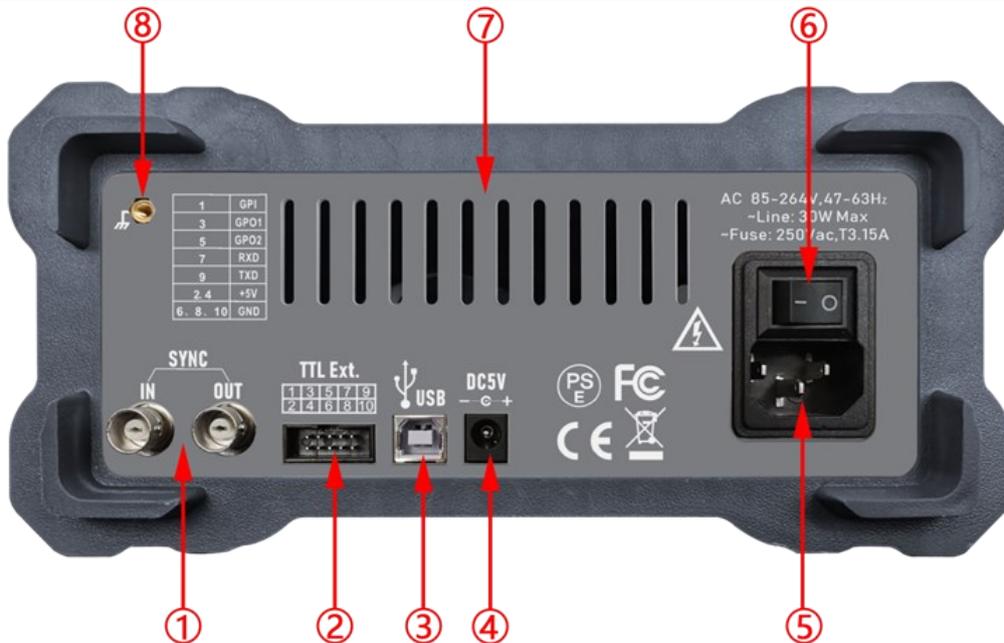
Number	Description	Number	Description
1	SYNC Connectors	5	AC Power connection
2	TTL-Connector (For use with PC software)	6	On-off switch
3	USB Interface (For use with PC software)	7	Ventilation holes
4	DC Power connection	8	Case earth connection

The function keys (front side no. 8):

- **SYS**: The system settings key. It is used to quickly switch between the main menu and the system settings.

  - Press this button to open the settings menu and then press the menu button **Page** to move to the next page. Press the menu buttons to select one of the setting options such as Clear Memory, Sound, Brightness, Language, Built-in Wave Number, Custom Wave Number, Waveform Loading Method, Synchronization, Factory Default, System Colour and other items.

  For more product information:
  Press the SYS button to get the unit information including model and serial number.

  - Press **SHIFT + SYS** to quickly enter the system help function.

- **MOD**: The modulation key. It is used to quickly switch between the main menu and the modulation menu.

  - Press this key to open the modulation menu. Here, press the **TYPE** menu key to switch between the functions amplitude modulation, frequency modulation, phase modulation, ASK, FSK, PSK, PWM and burst.

  - Press **SHIFT + MOD** to quickly call up the burst function.

- **MEAS**: The measuring mode button. It is used to quickly switch between the main menu and the measurement mode menu.

  - Press **MEAS** and the **CNTR.** and **MEAS.** Menu buttons in the measuring mode menu to switch between the measuring and counting functions.

  - Press **SHIFT + MEAS** to quickly switch to the count function.

- **LOAD**: The load button. It is used to call up the parameters of the memory locations.

  -Use the numeric keypad to select the position to load, then press **LOAD** to quickly load the parameters of the desired position.

  - Press **SHIFT + LOAD** to quickly save the parameters.

- **SWEEP**: The sweep key. It is used to quickly switch between the main menu and the sweep mode menu.

  - Press **SWEEP** to enter the sweep menu and press **FUNC** to switch between frequency sweep, amplitude sweep and duty cycle sweep.

- **VCO**: The VCO key is used to switch between the main menu and the voltage control menu.

  - Press **VCO** to enter the voltage control menu and press the **FUNC** menu key to switch between the frequency control, amplitude control and duty cycle control functions.
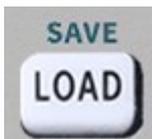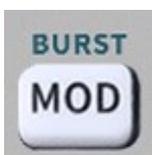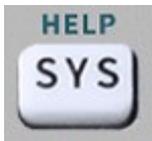
- **FUNC**: The function key. It is used to quickly switch between the main menu and the programming mode.

  - Press **FUNC** to enter programming mode. Press the **MODE** menu button to switch between Normal Mode and Debug Mode.
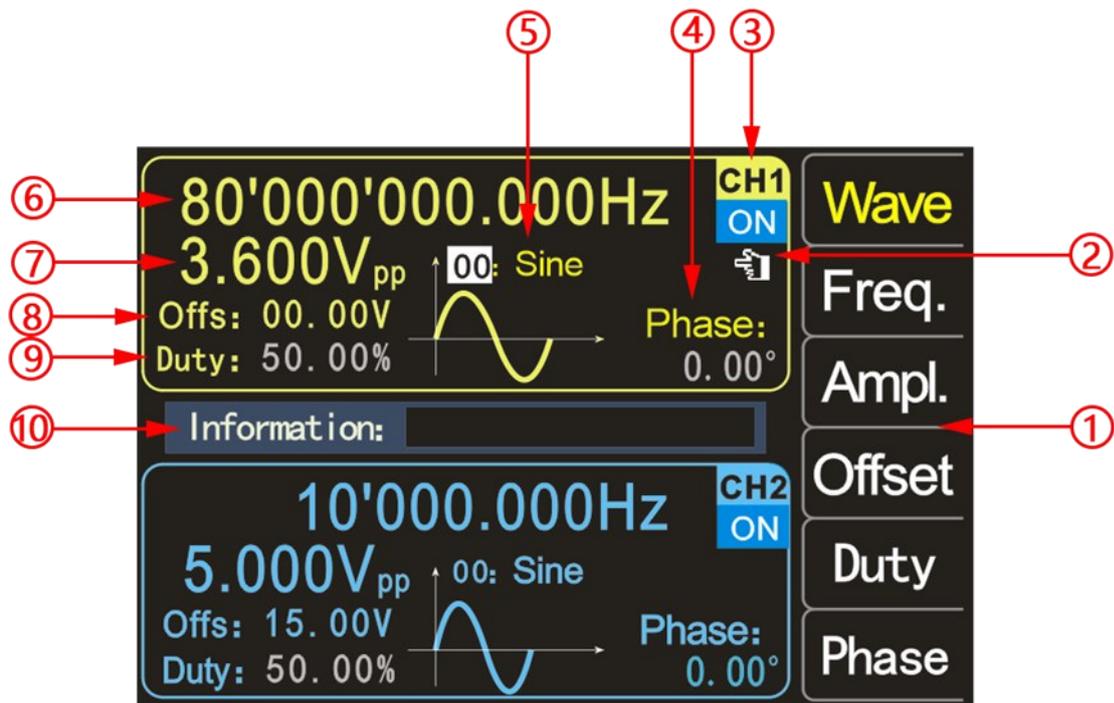

- **Button**: The Home button.

  - Press the -button to return to the standard screen.

  - Press and hold to quickly save the data to the M00 position.

5. SCREEN OVERVIEW

Number	Description	Number	Description
1	Menu buttons	6	Frequency
2	Finger cursor	7	Amplitude
3	Current channel status	8	Offset
4	Phase	9	Duty cycle
5	Waveform display	10	Information box

1.: The menu buttons display the operation menu of the currently selected function.

2.: The current finger cursor is on the **CH1** interface, this means that the currently selected channel is **CH1** and the change of parameters is only valid for this channel. By pressing the **CH2** button, the finger cursor can be moved to the **CH2** interface, now the parameters for channel **CH2** can be set

3.: The current channel status shows the on/off status of the current channels. **ON** indicates that the channel output is on and **OFF** indicates that the channel output is off. With the channel control keys **CH1** and **CH2**, the respective channel can be switched on or off. Press the channel control button **OUT** to switch the output status of CH1 and CH2 on or off simultaneously.

4.: **Phase** shows the phase-shift of the current waveform of channel 2, in relation to the wave output at channel 1. No phase-shift can be set on channel 1. After pressing the corresponding menu key, you can use the direction keys to select the value and the rotary knob to change the parameter.
You can also use the numeric keypad to set the phase-shift.

5.: The waveform display shows the currently set waveform of the channel. By pressing the **Wave** menu button, you can change the waveform using the rotary knob or the numeric keypad.

6.: Press the **Freq**. menu key to select "Frequency", use the direction keys to select the value you want to edit, then turn the knob to change the value. You can also change the value by entering it using the numeric keypad and then pressing the corresponding menu button to select the unit. Press the **Freq**. menu button twice and you can select the appropriate frequency unit (MHz, kHz, Hz, mHz, µHz).

7.: This number indicates the voltage of the current channel. Press the **Ampl**. menu key to select " Amplitude", use the direction keys to select the value to edit and turn the knob to change the value. You can also change the value by entering the value with the numeric keypad and then pressing the corresponding menu button to select the unit. The unit is Vpp or mVpp.

8.: **Offs**: indicates the set offset for the channel. By pressing the Offset menu button, you can adjust the offset. Use the direction keys to select the value you want to edit, then turn the knob to change the value. You can also change the value by entering it using the numeric keypad and then pressing the corresponding menu key to select the unit. The offset is always in volts.

9.: **Duty:** zeigt die Einschaltdauer der aktuellen Wellenform des Kanals an. Drücken Sie **Duty**, um die Einschaltdauer hervorzuheben, wählen Sie mit den Richtungstasten den zu bearbeitenden Wert aus, und drehen Sie dann den Drehknopf, um den Wert zu ändern. Sie können den Wert auch ändern, indem Sie ihn über die numerische Tastatur eingeben und dann die entsprechende Menütaste zur Auswahl der Einheit drücken. Die Einschaltdauer wird in % angegeben.

10.: **Information**: shows the entered value and the position of the stored and loaded data.
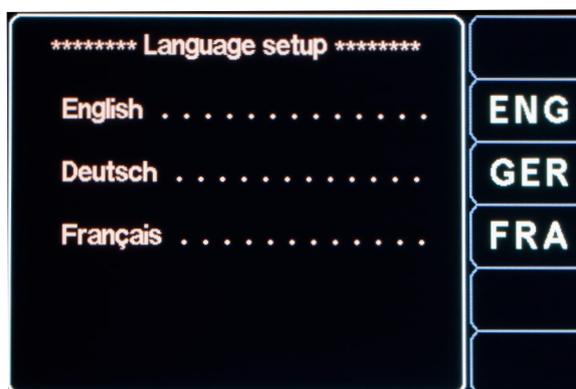
6. BASIC FIRST STEPS

To start the unit, connect an 85 V - 264 V AC, or a 4.8 V - 5 V 3A DC power source to the back of the unit and press the on/off switch.


Set the system language:
After the start screen is displayed, you can set the language. Press the corresponding menu key to select the desired language. The next time you start, you will not have to set the language again.

To select the output channel:

Press the CH1 or CH2 channel control button to select the **CH1** or **CH2** channel. You can see which channel is currently selected by the finger cursor.
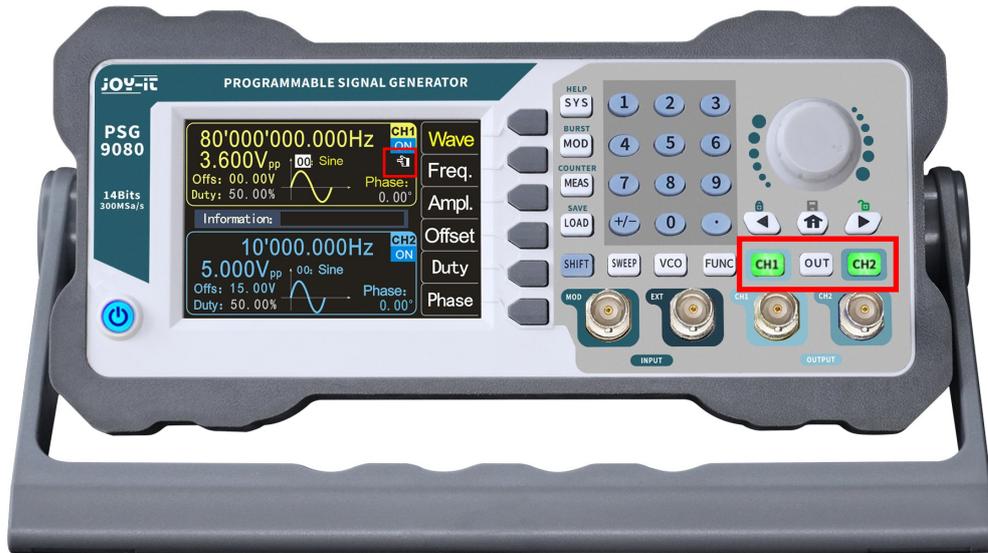

Select the waveforms:

Press the **Wave** menu button. The menu button bar on the right side of the screen shows the waveform. Press the desired menu key for the waveform or change the waveforms with the rotary knob to output the desired waveform.

In addition, you can adjust the waveform with the numeric keypad.
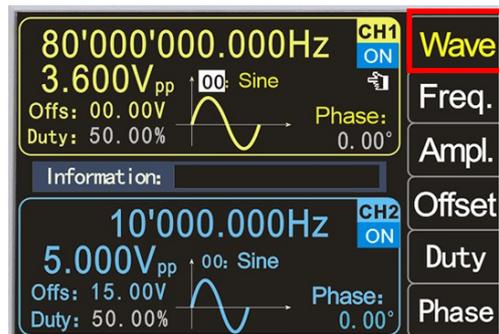
Set the frequency:

Press the menu key **Freq.** to highlight "Frequency", now enter the value of the desired frequency using the numeric keypad and then select the desired unit using the menu keys. You can also use the direction keys and the rotary knob to set the value of the parameter: Move the cursor with the direction keys to select the digit to edit, then turn the knob to change the value and set the frequency to the desired frequency; the frequency range is 0~80MHz. Press the **Freq.** menu button again to select the frequency unit: MHz, KHz, Hz, mHz, μHz.
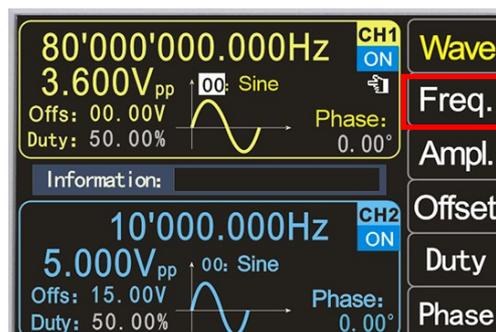
Set the amplitude:
Press the **Ampl**. menu button to highlight "Amplitude" and use the numeric keypad or turn the knob to set the desired amplitude value.
The amplitude range is limited by the frequency setting. The higher the frequency, the smaller the output amplitude range.

Frequency	< 1 MHz	≥ 1 MHz < 11 MHz	≥ 11 MHz < 30 MHz	≥ 30 MHz < 61 MHz	≥ 61 MHz ≤ 80 MHz
Amplitude range	2 mVpp ~ 25 Vpp	2 mVpp ~ 20 Vpp	2 mVpp ~ 10 Vpp	2 mVpp ~ 5 Vpp	2 mVpp ~ 3,6 Vpp

Adjusting the offset:
Press the **Offset** menu button to highlight "Offset" and use the direction buttons and rotary knob or numeric keypad to adjust the parameters and set the offset to the desired value.
The amplitude range is affected by the offset setting, the larger the offset, the smaller the amplitude range. When the DC level is selected for the waveform, the offset is the voltage value of the DC level (the amplitude value cannot be 0).

Setting the duty cycle:
The duty cycle cannot be set on every waveform, so sometimes the duty cycle is disabled on the screen.
Press the **Duty** menu button to highlight "Duty Cycle" and use the direction buttons and rotary knob or numeric keypad to set the parameters. The default duty cycle is 50%. The waveform is switched to pulse wave and the duty cycle is continuously adjustable between 0.01-99.99%.

Adjust the phase:
Press **CH2** to select CH2. At this time, the finger cursor to the right of the CH2 interface on the screen is on.
On the CH2 interface, press the **Phase** menu button to highlight Phase and use the arrow keys and knob or numeric keypad to set the parameters. The phase difference is 0.00° by default. Before setting the phase difference, you should activate the frequency synchronization in the system settings.

Observe the output waveforms:
Use the BNC test lead to connect **CH1** and **CH2** of the PSG9080 to an oscilloscope. Observe the waveforms on the oscilloscope. It is recommended to use our standard BNC test lead with a connector to test the square wave so that overshoots are low and waveforms are stable.

Load and save the parameters:
Press and hold the **Home button** to quickly store the parameters in the M00 position, or you can enter the stored position using the numeric buttons and then press the **SHIFT + LOAD** buttons to store a total of 100 memory positions 00-99.
Enter the desired position using the numeric keys and then press the **LOAD** key to load the parameters of the memory position.

7. MODULATIONSMODUS
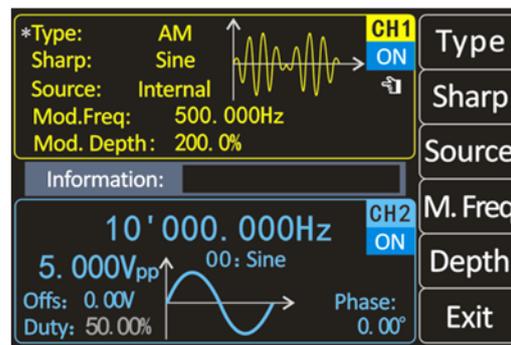
The PSG9080 can output modulated waveforms in single or dual channels. Modulation is the process of processing the information from the signal source and adding it to the carrier to make it suitable for channel transmission. It is the technology that changes the carrier with the signal. The carrier wave can be a sine wave, square wave, pulse wave, arbitrary wave (except DC signal wave). The modulated wave can be from an internal modulation source or an external modulation source. Modulation types supported by PSG9080 include AM, FM, PM, ASK, PSK, FSK, pulse and burst.

Select the modulation mode:
Press **MOD** and then → **Type** now you can select the desired modulation mode with the menu buttons or the rotary knob.

Select carrier waveforms:
Press **Sharp** and use the rotary knob to select the desired carrier waveform. The different settings of several parameters of the carrier waveforms (such as frequency, amplitude, offset, etc.) affect the output of the modulated waveform. For different carrier waveforms, the adjustable range of each carrier parameter is also different (in relation to the model of instrument you are using and the selected carrier waveform, see "Specifications" for details). For the setting method of the carrier parameters, please refer to the corresponding introduction in the section "Basic Output Waveform".

Selecting the source:
The PSG9080 can accept modulation waveforms from internal or external modulation sources.
Press **Source** to select "Internal" or "External" modulation source.

Internal source:
After selecting the internal modulation source, press the **Sharp** menu button to select sine wave, square wave, triangle wave, ascending exponential, descending exponential or any wave as the modulation source. The default is sine wave.

External source:
When the external modulation source is selected, the signal generator accepts the external modulation signal input via the MOD connector on the front panel.
The frequency range of the external signal is 0~20kHz, and the amplitude range is -5V~+5V.

Setting the carrier frequency:
After using the modulation source "Internal", press the menu key **Carr.F** to set the carrier frequency. Use the numeric keyboard or the direction keys and the rotary knob to enter the desired frequency value.
The frequency range is 0.001 Hz to 1 MHz and the default is 500 Hz.

Setting the modulation wave frequency:
After using the "internal" modulation source, press the menu key **Mod.F** to set the frequency of the modulated wave. Use the numeric keyboard or the direction keys and the rotary knob to enter the desired frequency value.
The modulation frequency range is from 0.001 Hz to 1 MHz and the default is 500 Hz.

AM
Amplitude modulation is a modulation method in which the amplitude of the carrier wave changes according to the desired transmission signal, but the frequency remains unchanged.

Setting the modulation depth:
The modulation depth indicates the degree of amplitude change, expressed as a percentage. The range of the amplitude modulation depth can be set from 0% to 200%. Press the menu button **Depth** to set the amplitude modulation degree.

FM
Frequency modulation is a modulation method that changes the carrier frequency according to the modulation signal. The magnitude of the frequency change of the modulated wave is determined by the magnitude of the modulation signal, and the period of the change is determined by the frequency of the modulation signal.

Set the frequency deviation:
Frequency deviation refers to the deviation of the frequency of the modulation waveform relative to the carrier frequency. Press the menu key **FM.Dev** to set the FM frequency deviation.

PM
Phase modulation is a modulation method in which the deviation of the carrier phase from its reference phase changes proportionally to the instantaneous value of the modulation signal.

Adjust the phase deviation of the modulation wave:
Phase deviation refers to the change in phase of the modulated waveform relative to the carrier phase. Press the menu key **PM.Dev** to adjust the phase deviation of the phase modulation.
Use the numeric keyboard or the direction keys and the rotary knob to enter the desired deviation value.
The adjustment range of the phase deviation is 0°to 359.9°, and the default value is 180°.

ASK
The modulation method that uses the digital baseband signal to control the amplitude variation of the carrier wave is called Amplitude Shift Keying (ASK), also known as digital amplitude modulation.

Setting the polarity:
Press the **Polar** menu button to select the amplitude of the modulated wave controlled by "positive polarity" or "negative polarity".

Setting the ASK amplitude:
Press the **Ampl**. menu button to set the ASK amplitude.
Use the numeric keyboard or the direction keys and the rotary knob to enter the desired amplitude value.
The ASK amplitude range is 0%-200%, the default is 80%.

FSK
The modulation method used to control the change in carrier frequency is called frequency shift keying (FSK).

Set the polarity:
Press the **Polar** menu button to select the amplitude of the modulated wave controlled by "Positive Polarity" or "Negative Polarity".

Set the hop frequency:
Press the menu button **Hop.F** to set the hop frequency.
Use the numeric keyboard or the direction keys and the rotary knob to enter the desired frequency value.

PSK

Phase-shift keying (PSK): With phase-shift keying, the phase of the output signal is shifted by the set phase, depending on the logic level of the source signal.

Setting the polarity:
Press the Polar menu key to select the amplitude of the modulated wave controlled by "positive polarity" or "negative polarity".
If the polarity is set to "positive polarity", a high level at the source signal shifts the output signal by the set phase. If the polarity is "negative", the phase of the output signal is shifted at a low level.

Setting the phase:
Press the **Phase** menu button to set the PSK phase.
Use the numeric keyboard or direction keys and the rotary knob to enter the desired frequency value.
The PSK phase range is 0° to 359.9°.

PWM

Digital adjustment of the pulse width and pulse period time of the pulse wave can be achieved, which is more accurate than setting the duty cycle. The pulse modulated waveform can only be a square wave. This method varies the ratio of the on-time to the specified period duration.

Set the wave inversion:
When you press the **W.Inv** menu button, you can select **Normal** and **Inv**. to control the output.

Set the pulse width:
Press the menu key **Width** to set the pulse width.
Use the numeric keypad or the direction keys and the rotary knob to enter the desired value (the unit can be us, ms, s).
The pulse width range is 0.001us to 4s, and the default is 0.100us.

Set the pulse period:
Press the **Period** menu button to set the pulse duration.
Use the numeric keypad or the direction keys and the rotary knob to enter the desired frequency value.
The period length range is from 0.001us to 40s, and the default is 10.00us.

Burst-Function

With the burst function, individual signal pulses can be sent.
The signal generator can be set to output 1-10000000 burst signals. Trigger modes include an internal trigger, external trigger (rising edge) and manual trigger. When using it, note that the period of the burst signal should be smaller than the period of the trigger signal.

Setting the Idle mode:
Press the menu key **Idle** You can select zero, positive maximum and negative maximum of the control output.

Set trigger source:
Press the **T.Src** menu button to select the trigger mode.
Menu key **Button**: Single output can be achieved by pressing the menu button **Trig**.
Menu key **Int.**: Internal trigger: The signal can be output via the CH2 channel of the signal generator.
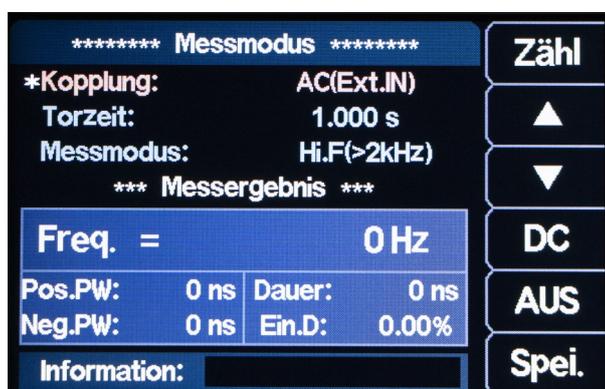Menu key **Ext.AC**: External AC signal trigger.
Menu key **Ext. DC**: External DC signal trigger.

Set the number of pulses:
Press the **Num.** menu button to set the number of pulses.
Use the numeric keyboard or the direction keys and the rotary knob to enter the desired number of pulses. The number of pulses ranges from 1 to 100000000, the default is 1.

8. MEASURING MODE

Press **MEAS** to enter the measuring mode menu and press the **CNTR.** or **MEAS.** menu button to switch between the counting and measuring functions.

Press **SHIFT + MEAS** to go directly to the counting function.

Measuring function

The measurement function can measure the frequency, period, positive pulse width, negative pulse width and duty cycle of the input signal. The measuring frequency range is 1Hz-100MHz, the amplitude range of the measuring signal is 2Vpp-20Vpp. Measurements are taken via the EXT input.

Setting the coupling:

Press ▲ ▼ to set the cursor to coupling. Use the rotary knob to switch the coupling between AC and DC.

Setting the gate time:

Press ▲ ▼ to move the cursor to the gate time position.
Use the numeric keyboard or the direction keys and the rotary knob to enter the desired gate time.
The gate time range is from 0.001 s to 10 s and the default is 1 s.

Set the measurement mode:

Press ▲ ▼ to move the cursor to the measurement mode and use the rotary knob to switch the measurement mode (low frequency <2kHz or high frequency >2kHz).

Measurement parameters: Frequency, period, positive pulse width, negative pulse width, duty cycle.

Counting function

The counting function calculates the number of input signal periods in real-time.

Set the coupling:

Press ▲ ▼ to set the cursor to coupling. Use the rotary knob to switch the coupling between AC and DC.

After setting the coupling, you can press the ON button to start the counting function. Press the OFF button to stop, the RST menu button to restore the default settings and the Save menu button to save the parameters.

9. SWEEP-MODE
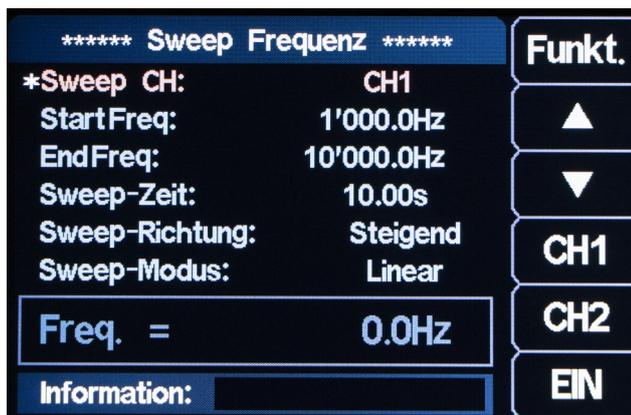
With the sweep function, a start and end value can be set, the set range is swept through in the set time. This can be used for frequency, amplitude and duty cycle.

Press the **SWEEP** key to enter the sweep menu. Press the **FUNC** menu key to select the functions frequency sweep, amplitude sweep and duty cycle sweep.

Press the **SAVE** key to quickly save the parameters in the M00 position. The menu for the frequency sweep is shown in the illustration.

Sweep time:

Press ▲ ▼ to position the cursor on the sweep time and use the numeric keyboard or direction keys and knob to enter the desired sweep time. The range of sweep time is from 0.01 s to 640 s.

Sweep direction:

Press ▲ ▼ to position the cursor on the sweep direction, with three directions to choose from: Rising, Falling and Rising & Falling.

Sweep mode:

Press ▲ ▼ to set the cursor to sweep mode, here you can choose between linear and logarithmic mode.

Sweep Channel

Change the channel by pressing the **CH1** or **CH2** menu button.

Sweep Frequency

Press the **FUNC** menu button to select the Sweep Frequency function. (**S.Freq)**

Start frequency and end frequency:

The start frequency and the end frequency are the upper and lower frequency limits of the frequency sweep. You can set both with the direction keys and the rotary knob, or the numeric keypad.

Turn on frequency sweep:

Press the **ON** button to start the frequency sweep. The frequency change can be observed on the display.

Sweep Amplitude

Press the **FUNC** menu button to select the Sweep Amplitude function. (**S.Ampl**)

Start amplitude and end amplitude:

The start amplitude and the end amplitude are the upper and lower amplitude limits of the amplitude run. You can set both with the direction keys and the rotary knob, or the numeric keypad.

Turn on sweep amplitude:

Press the **ON** key to start the amplitude run-through. The amplitude change can be observed on the display.

Sweep Duty Cycle

Press the **FUNC** menu button to select the sweep duty cycle function. (**S.Duty**)
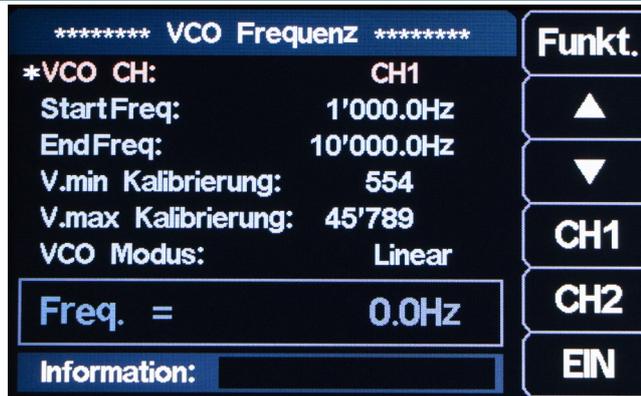
Start duty cycle and end duty cycle:

The start duty cycle and end duty cycle are the upper and lower limits of the duty cycle's duty cycle. You can set both with the direction keys and the rotary knob, or the numeric keypad.

Turn on the Sweep duty cycle:

Press the **ON** key to start the duty cycle. The duty cycle change can be observed on the display.

VCO stands for voltage-controlled oscillator. A voltage-controlled oscillator is an electrical oscillator whose frequency can be changed by the magnitude of an applied voltage. Press **VCO** and the **FUNC** menu key to select the frequency control, amplitude control and duty cycle control functions.

Press the **SAVE** menu key to quickly store the parameters in the M00 position.

VCO channel:

Press the **CH1/ CH2** menu buttons or the rotary knob to switch between channels.

VCO mode:

Press ▲ ▼ to move the cursor to VCO mode. You can choose between linear and logarithmic modes.

VCO Frequency

Press the **FUNC** menu button to select the frequency control. (**V.Freq**)

Start frequency and end frequency:

The start frequency and the end frequency are the upper and lower frequency limits of the frequency sweep. You can set both with the direction keys and the rotary knob, or the numeric keypad.

Minimum voltage calibration and maximum voltage calibration:

The maximum and minimum values of the external input signal voltage can be calibrated. You can set both with the numeric keypad.

Turn on VCO frequency:

Press the **ON** button to activate the function. The frequency change can be observed on the display.

VCO Amplitude

Press the **FUNC** menu button in the voltage control menu to select amplitude control. (**V.Ampl**)

Start amplitude and end amplitude:

The start amplitude and the end amplitude are the upper and lower amplitude limits of the amplitude run. You can set both with the direction keys and the rotary knob, or the numeric keypad.

Minimum voltage calibration and maximum voltage calibration:

The maximum and minimum values of the external input signal voltage can be calibrated. You can set both with the numeric keypad.

Turn on VCO amplitude:

Press the **ON** button to activate the function. The amplitude change can be observed on the display.

VCO Duty Cycle
Press the **FUNC** button in the voltage control menu to select the duty cycle control (**V.Duty**).

Start duty cycle and end duty cycle:

The start duty cycle and end duty cycle are the upper and lower limits of the duty cycle's duty cycle. You can set both with the direction keys and the rotary knob, or the numeric keypad.

Minimum voltage calibration and maximum voltage calibration:

The maximum and minimum values of the external input signal voltage can be calibrated. You can set both with the numeric keypad.

Turn on VCO Duty:

Press the **ON** button to activate the function. The duty cycle change can be observed on the display.

11. PROGRAMMING MODE

Programming mode allows a sequence of different signals to be output automatically. Press **FUNC** to enter the programming mode menu and the MODE menu key to switch between normal mode and debug mode.

In programming mode, press the **SAVE** key to save the data immediately.

Normal mode and debug mode

Press the MODE menu button to switch between normal mode and debug mode.

Under P00, debug mode is marked with * and normal mode with •
In debug mode, the display continues to show the programming mode when the signals are output, so that it can be recognized when the next signal is output and which one it is.
In normal mode, the display shows the home screen when the signals are output.

P00
P00 represents the memory position in programming mode. There are the group positions P00-P19.

No.
The number 00 indicates an instruction, there are a total of 00-99 sets of instructions.

Load
M00 indicates the location where the parameter is stored.

Time
Time 00S indicates the current runtime of the instruction.

Time: 00:00:00:00/00:00:00:00 indicates the current run time/total run time.

GoTo
The value in the **GoTo** field indicates the number of the instruction to jump to. If the value in the **GoTO** field is 05, it is transferred to instruction no. 05 after the current instruction is completed to start the run.

Loop
The value in the field indicates how often the instruction is repeated; if the cycle is set to 05, this means that the instruction is carried out 5 times.

12. SYSTEM SETTINGS
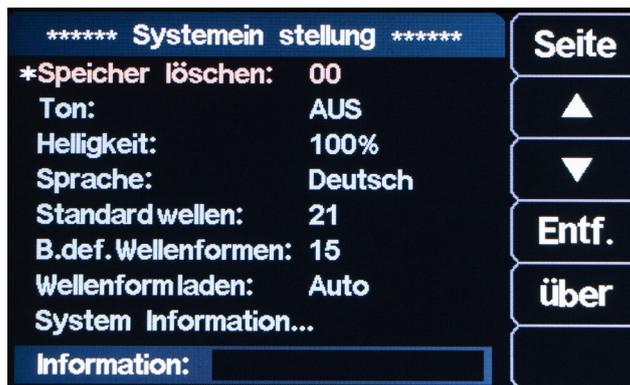
Press the **SYS** menu button to enter the system settings and press ▲ ▼ to select items such as Clear Memory, Sound, Brightness, Language, Built-in Wave Count, arb Wave Count, Waveform Load, Methods, System Information, etc.

Clear Memory:
To erase the parameters stored in the current position, the rotary knob for setting is turned to the specified position for erasing. The keypad can also be used to select the memory position.

Sound setting:
You can switch the sound on and off using the menu keys **ON** and **OFF** or the rotary knob.

Brightness setting:
You can quickly adjust the brightness using the numeric keys and the rotary knob.

Setting the language:
The German, English and French languages can be selected via the rotary knob or the menu keys.

Build-in Waveforms:
The number of built-in waves of the instrument can be set using the numeric keys and the knob. The setting range is from 00 to 21.

Arbitrary Waveforms:
The number of arbitrary waves of the instrument can be set using the number keys and the knob. The setting range is from 01 to 99.

Waveform loading methods:
You can select the waveform loading methods Auto and Fast.
If you have selected Fast, the waveform is loaded with 2048 sample points.
If you have selected Auto, the waveform is loaded with up to 8192 sample points. We recommend setting the loading method to Auto.

Information about the system:
Press the **About** button to display the product model, hardware version, software version, FPGA version, official website and official QR code of this instrument.

Change page:
Press the **PgDn** menu button to access the second page of the system settings.

Waveform synchronization:
The waveform synchronization can be switched on and off via the menu keys **ON** and **OFF**, or the rotary knob. During synchronization, the parameters of the CH2 channel change with the parameters of the CH1 channel.

Frequency synchronization:
Frequency synchronization can be switched on and off via the menu keys **ON** and **OFF**, or the rotary knob.

Amplitude synchronization:
Amplitude synchronization can be switched on and off via the menu keys **ON** and **OFF**, or the rotary knob.

Duty cycle synchronization:
The duty cycle synchronization can be switched on and off via the menu keys **ON** and **OFF**, or the rotary knob.

External synchronization:
The external synchronization can be switched on and off via the menu keys **ON** and OFF, or the rotary knob.

Frequency fine-tuning:
You can adjust the frequency to synchronise the waveform, the setting range is 0-99.

Recover to default settings:
The factory settings can be restored by pressing **RUN**.

System colour:
There are four system colours. You can select the desired system colour using the numeric keys and the rotary knob and press the Save menu key to save the system colour.

Automatic Power-on:
You can switch the automatic Power-on on and off using the menu keys ON and OFF, or the rotary knob. After turning on the automatic power-on function, the unit output is turned on by default at start-up.

CH1/CH2 Amplitude fine-tuning:
If the output amplitude of the CH1/CH2 channel waveform differs slightly from the measured amplitude, you can change the CH1/CH2 amplitude fine-tuning value and perform calibration to obtain accurate amplitudes. The default value for the CH1/CH2 amplitude fine-tuning is 50.

This chapter lists the common PSG9080 errors and their solutions. If you encounter these problems, please solve them by following the appropriate steps. If the problem persists, please contact us.

<u>The screen is still dark (no display) after pressing the power button:</u>

Check whether the power supply is connected correctly.

Check whether the power button is really pressed.

Restart the instrument after completing the above checks.

<u>The screen is too dark to see the content on the screen clearly:</u>

Check if the brightness and contrast settings are too low.

Press the SYS key to enter the system settings menu, then press the ▲ ▼ key to move the cursor to the brightness position and adjust the brightness of the screen to a suitable value using the corresponding rotary knob.

<u>The settings are correct but no waveform is generated:</u>

Check if the BNC cable is firmly connected to the corresponding channel output connector (CH1 or CH2).

Check if the BNC cable has internal damage.

Check if the BNC cable is firmly connected to the tester.

Check whether the signal output of CH1 or CH2 is switched on. If not, press the corresponding button to turn on the signal output.

After completing the above checks, press the power button and restart the unit.

If it still does not work properly, please contact us.

Our information and take-back obligations according to the Electrical and Electronic Equipment Act (ElektroG)

Symbol on electrical and electronic equipment:

This crossed-out dustbin means that electrical and electronic appliances do not belong in the household waste. You must return the old appliances to a collection point.
Before handing over waste batteries and accumulators that are not enclosed by waste equipment must be separated from it.

Return options:
As an end user, you can return your old device (which essentially fulfils the same function as the new device purchased from us) free of charge for disposal when you purchase a new device.
Small appliances with no external dimensions greater than 25 cm can be disposed of in normal household quantities independently of the purchase of a new appliance.

Possibility of return at our company location during opening hours:
SIMAC Electronics GmbH, Pascalstr. 8, D-47506 Neukirchen-Vluyn, Germany

Possibility of return in your area:
We will send you a parcel stamp with which you can return the device to us free of charge. Please contact us by email at Service@joy-it.net or by telephone.

Information on packaging:
If you do not have suitable packaging material or do not wish to use your own, please contact us and we will send you suitable packaging.

15. SUPPORT

If there are still any issues pending or problems arising after your purchase, we will support you by e-mail, telephone and with our ticket support system.

Email: **service@joy-it.net**

Ticket system: http://support.joy-it.net

Telephone: +49 (0)2845 98469-66 (10-17 o'clock)

For further information please visit our website:

www.joy-it.net

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