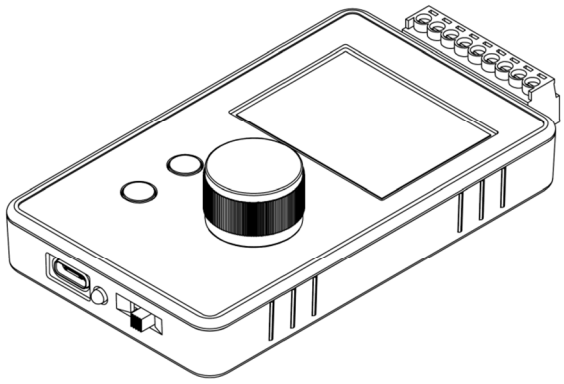
Model: QH-VISG3-ED(English with battery) / QH-VISG3-EN(English without battery)

Handheld Multi-function Signal Generator - User Manual V1.20



1 Technical indicators：

1.1 **Power** 3 power supply methods, mobile phone charger power bank or external 24V can be charged/operated..

1.1.1 DC24V±4V power supply via external terminal 2W (not charging) / 5W (charging）

1.1.2 External TypeC-USB 5V current 0.4A (not charging)/1A (charging);

1.1.3 (Optional) Built-in 3.7V lithium battery with a capacity of 1500mAh, maximum charging current of 0.8, the battery indicator light turns green when fully charged and stops charging automatically, generally takes more than 6 hours to charge, and can be used for 1-5 hours depending the size of the output load;

1.2 Voltage output ±12V can be set, factory default 0-10V, accuracy after calibration 0.03V, driving current &;20mA, with short circuit protection;

1.3 Current output 0-24mA settable, factory default 4-20mA, accuracy after calibration 0.05mA, take-off resistance <500 ohms, short-circuit possible;

1.4 Voltage measurement range: ±50V, current measurement range: ±50mA; error less than 0.03V or m

1.5 PWM output: frequency 1-150 kHz adjustable, duty cycle 0-100% adjustable, high level fixed 5, driving current <20 mA, with short-circuit protection; (Note that this PWM output is not applicable to 12V or 2V systems, as 5V is considered low level for them);

1.6 Display specifications: 2.0 inch TFT color screen (320*240 pixels);

1.7 EC11 Digital Encoder Knob (20 steps per revolution with push button);

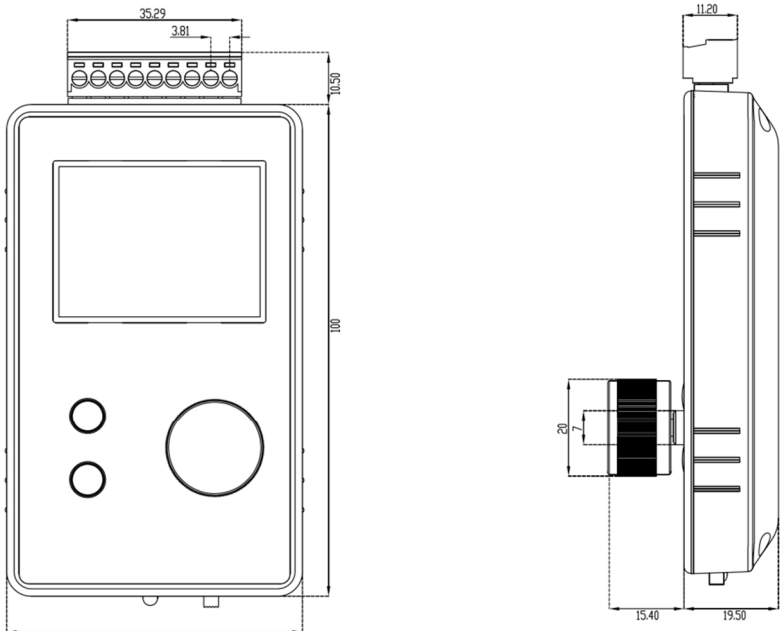
1.8 Connector plug specifications, 15EDGK3.81(9P);

1.9 Working environment: 0-40℃, relative humidity <80%;

1.10 **Size (cm)：** Case 100x60x19.5; plug length 10.5; knob height 15.4;

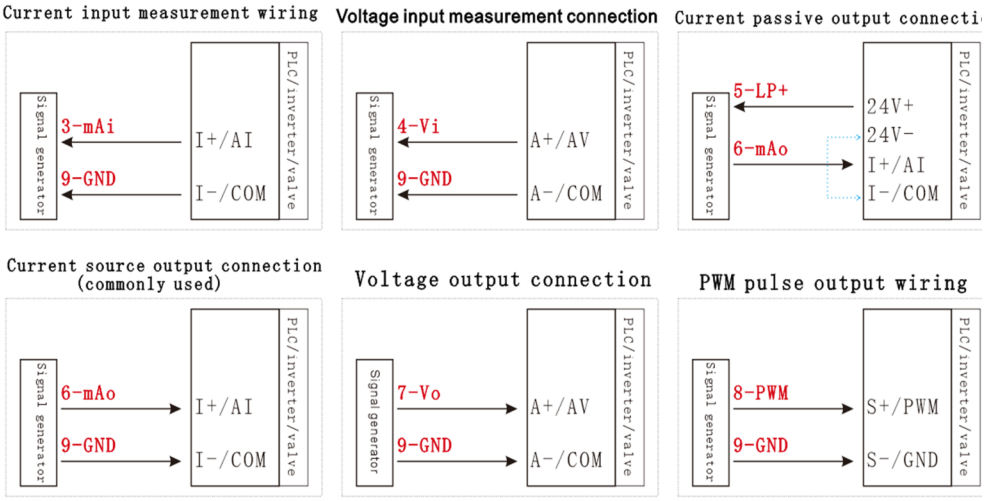
1.11 **Weight：** With battery 120g / without battery 100g; accessories and cardboard box about 150g.

2 Dimensional drawing of the appearance



3 Connection diagram (terminal numbers are counted from left to right 1--9)

Power supply negative (input)	GND	①
Power supply positive (input)	24V	②
Current signal input positive	mAi	③
Voltage signal input positive	Vi	④
EXT 24V input(passive mode)	LP+	⑤
Current signal output positive	mAo	⑥
Voltage signal output positive	Vo	⑦
PWM output positive	PWM	⑧
Signal common ground (internal connect to ①-GND)	GND	⑨



3.1 1-GND is the same as 9-GND, either can be arbitrarily connected;

3.2 <1-GND 2-24V>External power input to power/charge the met

3.3 The current output is commonly used in active mode, the output of the meter **<6-mAo 9-GND>** corresponds to positive and negative current input of the **PLC**, and the voltage output **<7-Vo 9-GND>** corresponds to the positive and negative voltage input the **PLC**, or it can be measured directly with a multimeter;

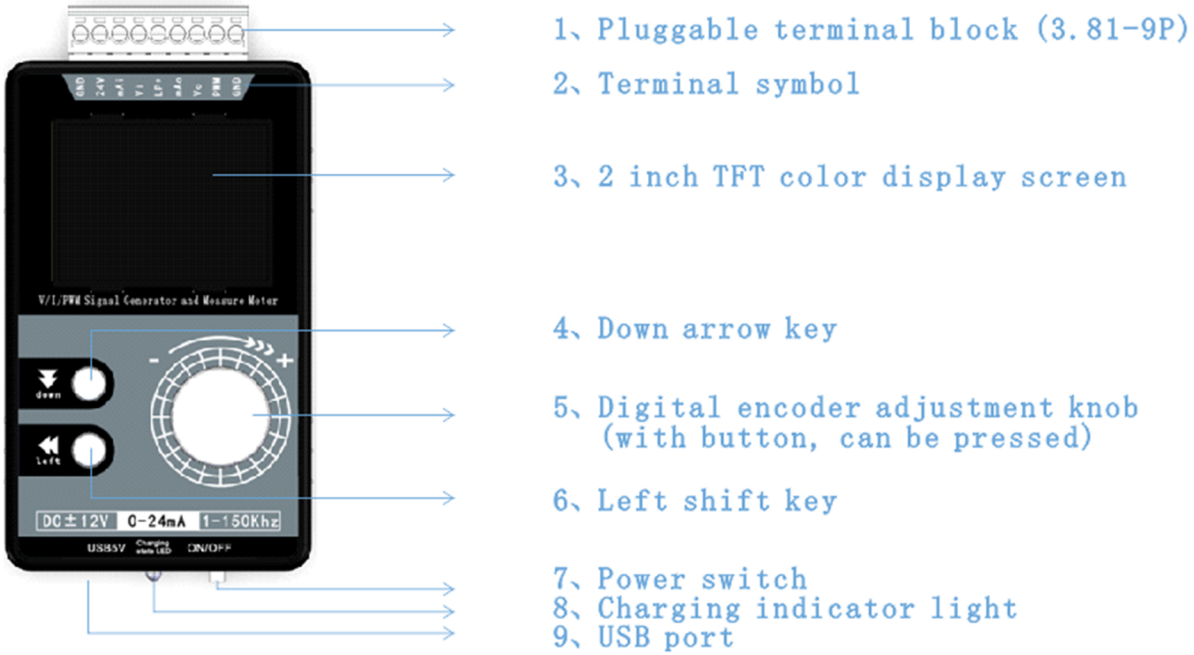
3.4 Current Sink Two-Wire Output: Connect the **24V+** to the **5-LP+** terminal of the meter head, and output from the **6-mAo** terminal to control the current of the external **24V**. The meter head is equivalent to a variable resistor, so it is called passive mode. Direct measurement cannot detect the current, and it can be directly replaced with a passive two-wire pressure/temperature sensor, etc.;

3.5 **PWM** pulse output high level is **5V**, low level is **0V**, it can directly drive buzzer, **LED**, optocou, etc., or connect to **12V/24V** system through external level conversion module;

4 Dosage:

4.1 Operation panel and operation instructions:

The surface protective film of the sticker can be peeled off



4.2 Keyboard legend:

4.2.1 Power key: the left "NO" key is for power on, and the right "OFF" key is for power off. Slider.

4.2.2 The "down" key, which is mainly used to switch the selected parameter downwards; additionally, in the "measurement page", pressing this key can achieve page jumping between the "measurement page" and the "help/setting menu";

4.2.3 "left" key, this key is used to move the editing cursor when editing numerical adjustable parameters;

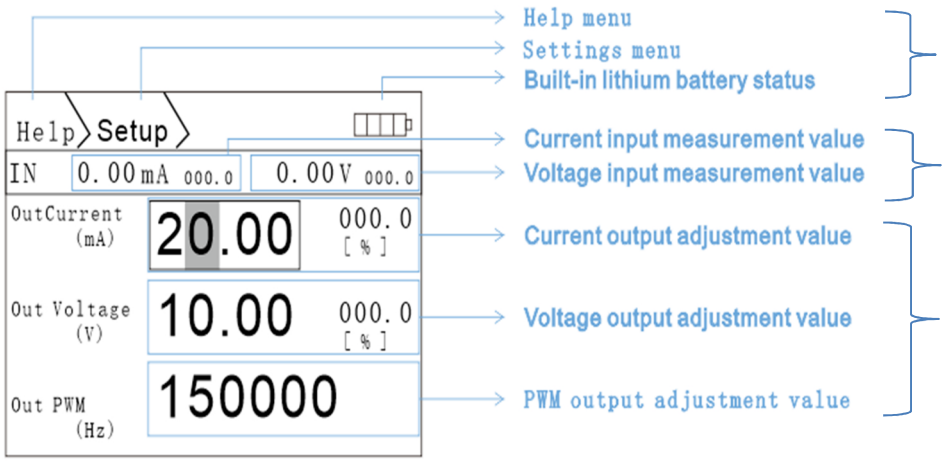
4.2.4 Rotary encoder, clockwise rotation, the adjustable value parameter is increased, that is, **" <add>"**; counterclockwise twist the adjustable value parameter is decreased, that is, **" - <subtract>"**;

4.2.5 Encoder knob, press to indicate the **"OK<confirm key>"** key

(Note: keystroke actions in the following are represented by the shorthand notation here);

4.3 Instructions for screen display:

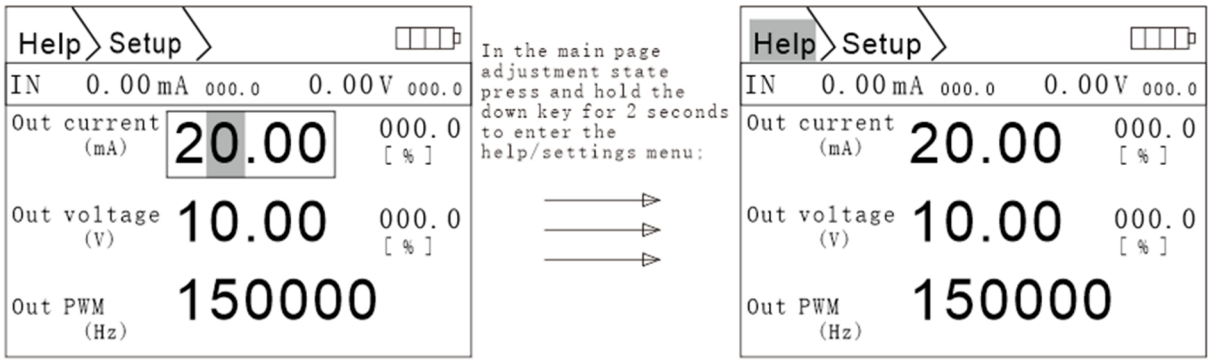
4.3.1 Main page description:



《Figure 1》

4.3.2 The main page is mainly divided into 3 parts, **menu bar, input measurement display, output adjustment display.**

4.3.3 Tap the "Menu Bar" to press the knob "**OK<Confirm Key>**" to enter the help and set pages, and switch betweenMenu Bar" and "Output Adjustment Status" by long pressing "**down**<Down Key>":（Figure 2）

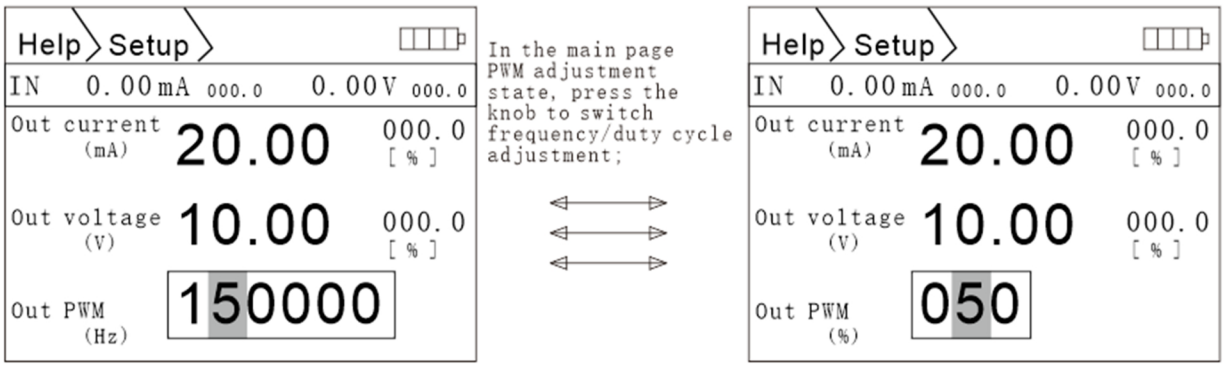


《Figure 2》

4.3.4 "Input Display" will display the applied current and voltage in "Actual Value" and "Display Value" converted according to the display mode respectively. When the display value is not within the display range, it will be displayed as "------";

4.3.5 "Output Control" can adjust the current, voltage, and PWM output.

4.3.6 Clicking "**Left<left key>**" can move the blue editing cursor to the left, clicking "**Down<down key>**" can move the current parameter, and when "Output PWM" is selected, the output **frequency and duty cycle** of PWM can be switched by "**OK<confirm key>**":(Figure 3)



(Figure 3)

4.3.7 The rightmost of "Output Current" and "Output Voltage" is the corresponding display value converted from the actual value according to the "Display Mode" set the user, and the symbol indicates the current "Display Mode".

4.3.8 Current output disconnection description: When the current output does not form an effective current loop (disconnection or resistance greater than 500Ω), the output may not actually reach the set value, the main page displays the disconnection mark "🔗", and the current output does not display the icon when there is a normal current loop

4.3.9 Charge state description: When the device is powered off and the Type-C charging port is connected to a Type-C charger, lower charging indicator light is red and turns green when fully charged. When the device is powered on and the Type-C charging port is connected to a Type-C charger, the charging indicator light is red, and the battery charge level in the upper right corner of the screen is green and repeatedly cycles to increment the battery bars (regardless of how much charge left before charging, it turns green when charging begins). When fully charged, the lower charging indicator light is green, and the battery in the upper right corner of the screen is and does not flash. **When the Type-C charging plug is disconnected, the battery in the upper right corner of the screen is displayed in white** (you can view the fully charged diagram below).

4.3.10 Battery level description:

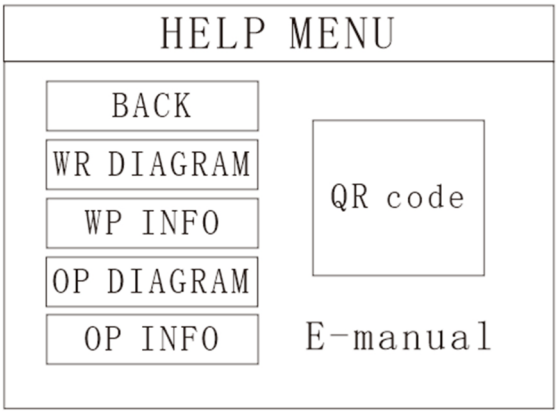
🔋：All white, battery capacity above 75% (i.e. 75%-100%);

🔋：White ash, battery capacity within 75% or less (i.e., 50%-75%);

🔋：Orange gray, battery capacity within 50% or less (i.e., 25%-50%);

🔋：Red ash, battery capacity within 25% or less (i.e. 0%-25%);

4.4 Help menu page description:

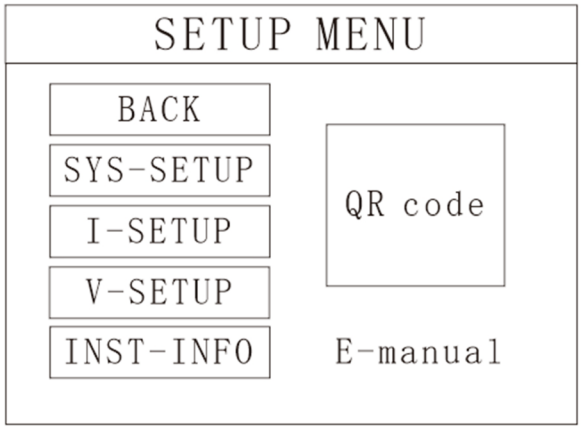


《Figure 4》

"The "Help Menu Page" is mainly text information that explains the class, simply introducing the product's usage instructions and other information, and is accompanied by a code that can be used to obtain a detailed electronic version of the manual. It contains four parts,namely the wiring diagram, wiring instructions, operation diagram, and operation instructions. (shown in Figure 4)

4.5 Settings Menu Page Explanation:

The "Settings Menu Page" is mainly used to set related system parameters. This page is also equipped with a QR code,

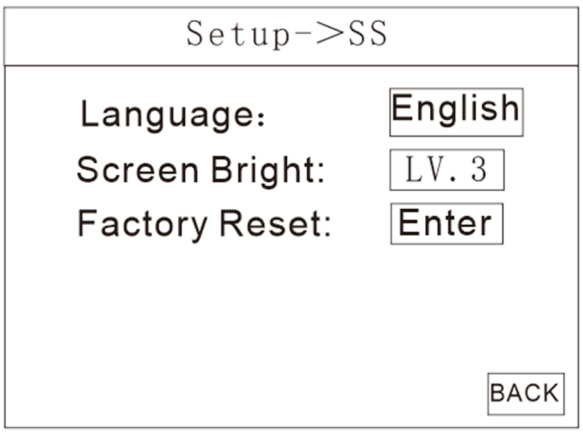


which allows users to scan the code any time to view the detailed instructions in electronic version. It contains four parts, namely System Settings, Current Settings, Voltage Settings, and System Information. Users can enter the corresponding to make specific adjustments according to their needs. (As shown in Figure 5)

《Figure 5》

4.5.1 System Settings description:

In the system settings operation page, you can set "System Language", "Screen Brightness", "Restore Factory Settings" (as shown in Figure 6)



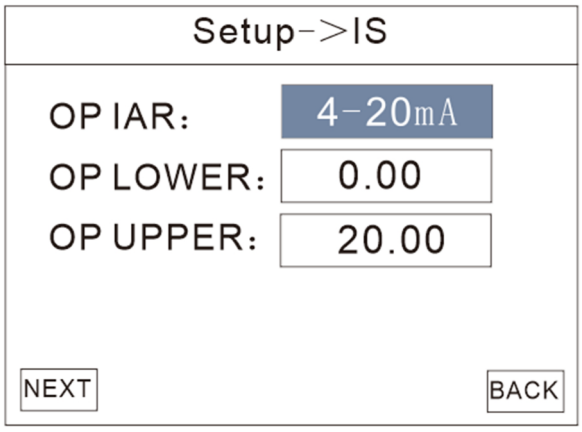
《Figure 6》

a. System language: Press **"OK<confirm key>"** to switch between the two versions of Chinese/English;

b. Screen brightness adjustment: Press the **"OK<confirm key>"** to adjust the screen brightness (there are four levels: LV.-4);

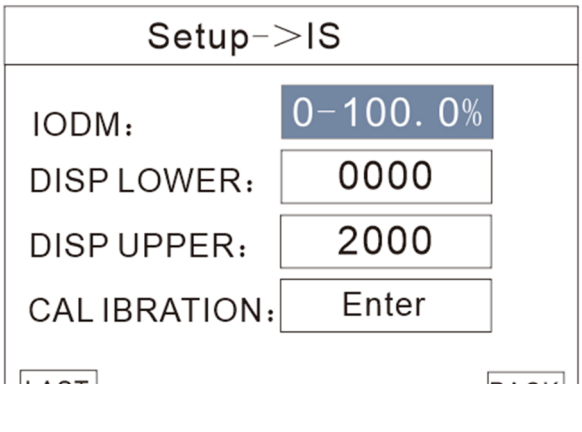
c. Factory reset: After pressing the **"OK<Confirm key>"**, an operation prompt box will pop up. Select "Yes" "No" through the "Down<Down key>" and then press the "OK<Confirm key>" again to confirm the operation If "No", the prompt box will be eliminated without any action; if "Yes", the factory reset operation will be performed. After the operation is completed, the prompt will display a message, and the prompt box will be automatically eliminated after 2s;

4.5.2 Current settings description: The adjustable parameters in the current settings page include, "Output range", "Output low end", "Output high end", " mode", "Display lower limit", "Display upper limit" and "Current compensation". (as shown in Fig. 7, Fig. 8)



The "output range" is switched by "**OK<Enter key>**", and the "output low end" and "output high end" can be selected for parameter setting only when it is set to "custom", and the output range is determined by the custom data. If the parameter value of "output low" is greater than the parameter value of "output high end", the system will regard the smaller of the two as the low end data; press "**Left<Left>**" to move the blue editing cursor. (As shown in Fig. 7)

《Figure 7》

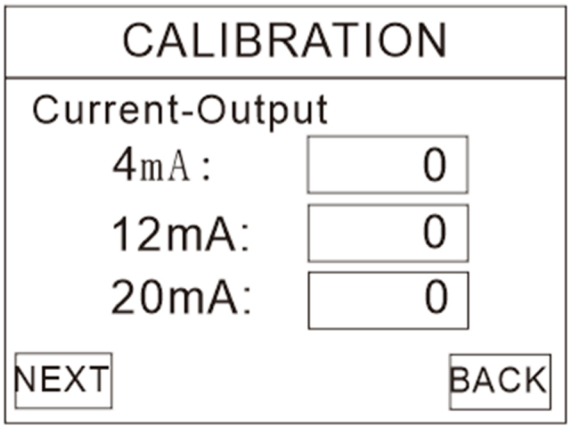


The "display mode" is switched by "**OK<confirm key>**",

and the setting method is the same as the "output range. When it is set to "custom", the "display lower limit" and "display upper limit" can be selected for parameter setting, and their setting range is from -999 to 9999. The decimal point position can be switched by pressing "**OK<confirm key>**", and the editing cursor position be switched by pressing "**Left<left key>**". (As shown in Fig. 8)

《Figure 8》

Current Compensation: After pressing the "**OK<Confirm Key>**", enter the current compensation page, which includes output compensation and input. The output compensation is adjusted by three compensation output points 4mA, 12mA, 20mA to adjust the output accuracy of the product. By adjusting the, the three compensation points accurately output the corresponding current values. When performing input compensation, a real-time current display (yellow box selection) is provided, which can be connected to current value corresponding to the compensation point 0mA and 20mA to compensate for the input measurement by adjusting the coefficient. (The compensation coefficient will affect the input and output please modify with caution)



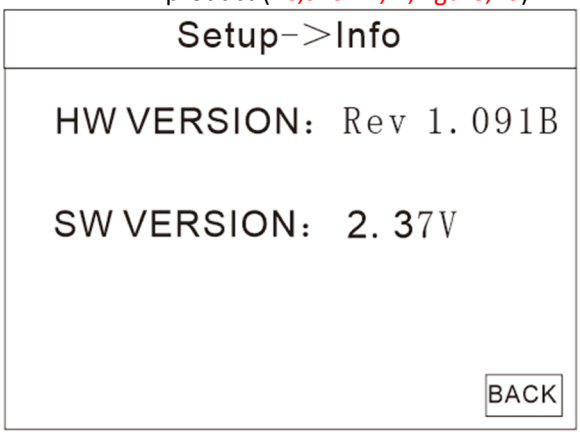
Detail: connect the output line to the multimeter, turn the knob to the left for "minus" value, and to the right for "plus" value Start adjusting "4mA", watch the value of the multimeter, adjust it to the value of the multimeter display "4mA", adjust "12mA" "20mA" in turn, switch the current to output the current synchronously, the operation method is the same as "4mA" method, and it is completed. completion, you can return, and the system will automatically save. (as shown in Figure 9)

Note: The compensation values are not expressed in numerical units or current units, but are only for reference.

《Figure 9》

4.5.3 Voltage setting description: The setting method of the parameters inside "Voltage setting" is the same as that of "Current setting". Please read the current description, refer to the description to complete the setting of the function. (Please refer to the current setting, omitted...)

4.5.4 "System Information": Records the current hardware version number and software version number of the product.(As,shown,in,Figure,10)



《Figure 10》

5 Notes to be taken care of

5.1 Turn off the power supply before wiring;

5.2 Beyond the range indicated by the technical specifications, it is possible to cause this instrument to operate abnormally or even damage it;

6 6 Packing list

6.1 Multi-functional generator host; 1 piece;

6.2 Phillips screwdriver 1 piece;

6.3 Type-C charging cable 1 piece;

6.4 Crocodile clip test leads 4 pcs;