Dear Client,

Thank you for purchasing our HTZH-2H SF6 Gas Analyzer. Please read the manual in detail prior to first use, which will help you use the equipment skillfully.

Our aim is to improve and perfect the company's products continually, so there may be slight differences between your purchase equipment and its instruction manual. You can find the changes in the appendix. Sorry for the inconvenience. If you have further questions, welcome to contact with our service department.

The input/output terminals and the test column may bring voltage, when you plug/draw the test wire or power outlet, they will cause electric spark. PLEASE CAUTION RISK OF ELECTRICAL SHOCK!

◆ SERIOUS COMMITMENT

All products of our company carry one year limited warranty from the date of shipment. If any such product proves defective during this warranty period we will maintain it for free. Meanwhile we implement lifetime service. Except otherwise agreed by contract.

◆ SAFETY REQUIREMENTS

Please read the following safety precautions carefully to avoid body injury and prevent the product or other relevant subassembly to damage. In order to avoid possible danger, this product can only be used within the prescribed scope.

Only qualified technician can carry out maintenance or repair work.

--To avoid fire and personal injury:

Use Proper Power Cord

Only use the power wire supplied by the product or meet the specification of this produce.

Connect and Disconnect Correctly

When the test wire is connected to the live terminal, please do not connect or disconnect the test wire.

Grounding

The product is grounded through the power wire; besides, the ground pole of the shell must be grounded. To prevent electric shock, the grounding conductor must be connected to the ground.

Make sure the product has been grounded correctly before connecting with the input/output port.

Pay Attention to the Ratings of All Terminals

To prevent the fire hazard or electric shock, please be care of all ratings and labels/marks of this product. Before connecting, please read the instruction manual to acquire information about the ratings.

Do Not Operate without Covers

Do not operate this product when covers or panels removed.

Use Proper Fuse

Only use the fuse with type and rating specified for the product.

Avoid Touching Bare Circuit and Charged Metal

Do not touch the bare connection points and parts of energized equipment.

Do Not Operate with Suspicious Failures

If you encounter operating failure, do not continue. Please contact with our maintenance staff.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in Explosive Atmospheres.

Ensure Product Surfaces Clean and Dry

—Security Terms

Warning: indicates that death or severe personal injury may result if proper precautions are not taken

Caution: indicates that property damage may result if proper precautions are not taken.

ContentS

Attention

If you are using this product for the first time, please pay attention to the following:

At the beginning of measurement, first open the needle valve on the instrument measuring pipe, and then adjust the flow with the flow valve on the panel. If the measurement is finished, the operation will be reversed.

When the instrument is not used for a long time, there will be some air left in the test pipe and air chamber. Therefore, during the first test, the high humidity gas will affect the test speed, because the tested SF6 gas needs to be taken away before reaching saturation. So we will find that when we test the second SF6 Electrical equipment and measure it later, the speed will be very fast (3-5 minutes).

In case of high temperature, we suggest to arrange the measurement time as far as possible when the temperature is low in the morning, because the higher temperature will affect the accuracy of measurement.

Be careful

1. In the working environment, the product may cause radio interference. In this case, it may be necessary for users to take practical measures for their interference.
2. Please read and keep this manual for future reference.
3. Check whether the equipment is abnormal before opening.

1. Function introduction

SF6 gas comprehensive tester is a set of SF6 humidity, SF6 purity, SF6 decomposition products testing in one, the original three instruments to achieve the function, concentrated in one instrument. One on-site measurement can complete the three indicators detection, greatly saving the gas in the equipment, reducing the user's workload and improving the work efficiency.

The excellent performance of SF6 gas comprehensive tester is due to the use of the best sensors from abroad; pure imported high-precision humidity sensors are used for humidity, thermal conductivity sensors with temperature compensation are used for purity, and the decomposition products are also imported from Europe. Color LCD display, real-time display of various parameters, full touch, fool operation, mass information storage, built-in rechargeable battery, AC and DC dual-purpose.

2. Product characteristics

- Self calibration: the sensor probe can automatically calibrate the zero point, automatically eliminate the system error caused by zero point and drift, and ensure the accuracy of each measurement.
- Easy to operate, super large touch LCD screen, simple operation of WYSIWYG type.
- Optional equipped with pipeline cleaning device, automatic cleaning of internal

pipeline after test, improve test speed and accuracy.

- Fast gas saving: after the machine is started and in the measurement state, the dew point measurement time is about 3 minutes.
- Self locking joint: the original imported self-locking joint is used, which is safe and reliable without air leakage.
- Data storage: it adopts large capacity design and can store up to 1000 groups of test data.
- Clear display: 7-inch large touch LCD directly displays dew point, micro water (PPM), SF6 purity, SO2, H2S, Co, HF content, ambient temperature, humidity, time and date.
- The built-in USB interface can be connected with the PC, and all the internal data of the instrument can be uploaded to the computer through the supporting software to facilitate data analysis.
- Built in large capacity rechargeable lithium battery, which can work continuously for more than 12 hours in one charge.

3. Technical parameter

purity	measuring range	0%~100%
	measurement accuracy	±0. 5%
	response time	〈2 minutes
	measuring range	—80 ℃～+20 ℃

The dew point	measurement accuracy	±0.5℃（－60℃～+20℃） ±1.0℃（－80℃～-60℃）
	response time（＋20℃）	63% takes 5 seconds, 90% takes 45 seconds (- 60 ℃ ~ + 20 ℃) 63% takes 10 seconds, 90% takes 240 seconds (- 80 ℃ ~ - 60 ℃)
H2S	measuring range	0~200ppm
	Minimum detection quantity	≤0.1ppm
	Accuracy	±0.5%
	stability	0~200ppm
	Repeatability	≤2%
S02	measuring range	0～200ppm
	Minimum detection quantity	≤0.1ppm
	Accuracy	±0.5%
	stability	0～200ppm
	Repeatability	≤2%
ambient temperature	－40℃～＋60℃	
Ambient humidity	0～100％ RH	
Power	AC 100～240V 50/60Hz	
	Built in rechargeable battery	
Battery performance	Charging time: 10 hours; use time more than 12 hours.	
working temperature	－30℃～＋70℃	
size	280×190×300 mm	
weight	7.6Kg	

4. Measurement

4. 1、 Connecting device

Connect the screw end of the measuring pipe with the switch joint, and tighten it with a wrench;

Close the flow regulating valve on the front panel of the main engine;

Insert one end of the quick connector on the test pipe into the air inlet on the decomposition product detector;

Connect the exhaust pipe to the air outlet.

4. 2、Startup initialization

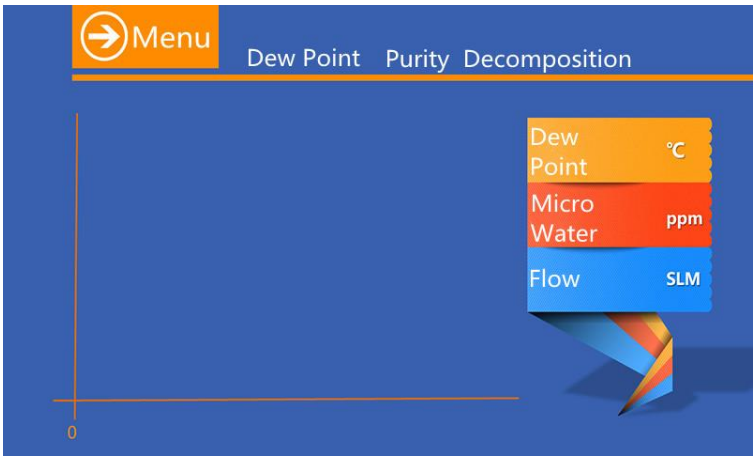
Turn on the power switch of the instrument, and the instrument enters the process of initialization and self calibration.

4. 3、Check power

When using the internal battery for power supply, the upper right corner will display the battery capacity. If the battery capacity shows the red power shortage sign, please charge it as soon as possible before continuing to use.

This instrument can be used while charging, but the charging time will be greatly extended.

4. 4、Start measuring



✧ When the power is turned on, the instrument will initialize automatically. After

self calibration, it will enter the measurement state automatically.

✧ Confirm that the high-precision control valve on the instrument is closed, and test the quick plug of the pipeline Insert the air inlet of this instrument.

✧ Connect the other end of the test pipe to the air supply port (or test port) of the equipment to be tested.

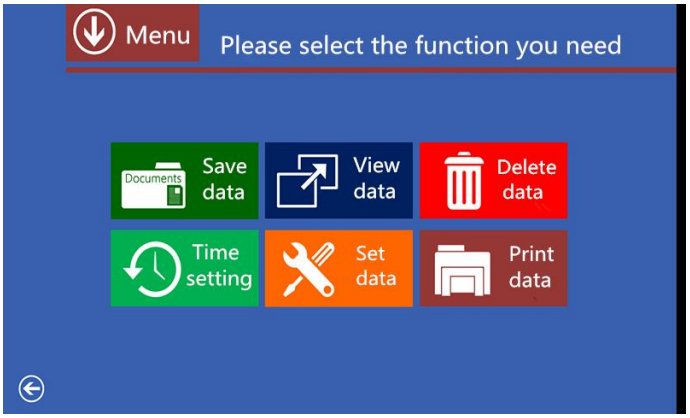
✧ At this time, turn on the control valve on the front panel of the instrument, and then adjust the gas flow rate.

✧ The first measurement (SF6 micro water) takes 5-10 minutes, and then only 3-5 minutes each time.

✧ When measuring SF6 dew point separately, adjust the flow to about 0.5 SLM (standard liter per minute).

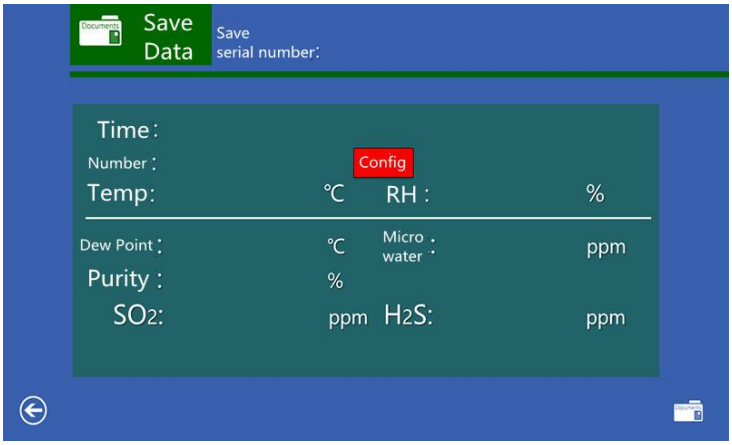
✧ When measuring the SF6 purity, H2S, SO content, adjust the flow to 0.2SLM (standard liter per minute).

4.5、Store data



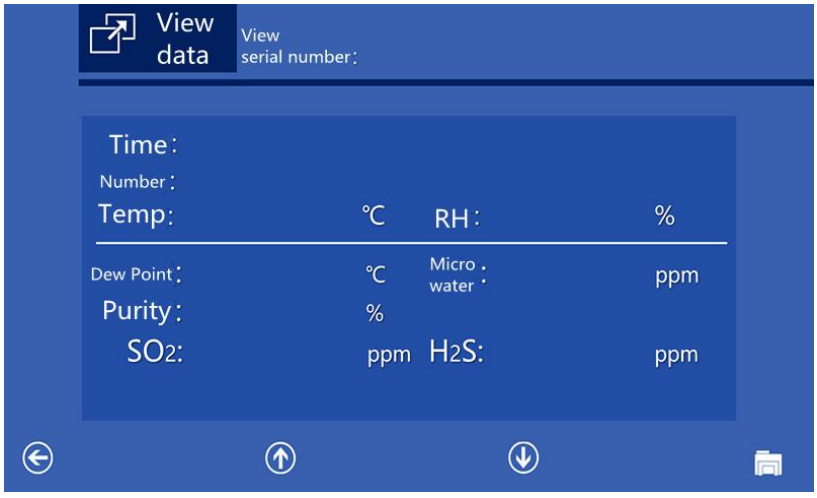
After the measurement data of the equipment is stable, you can save the data,

press the "menu" text on the screen, call up the main menu interface, select "print data", you can print out the current test data, select "save data", you can enter the data saving interface.



Press the red "configuration" button to input the test number. After confirmation, press "save data" in the lower right corner to save the current data to the instrument. The instrument can save up to 1000 pieces of data.

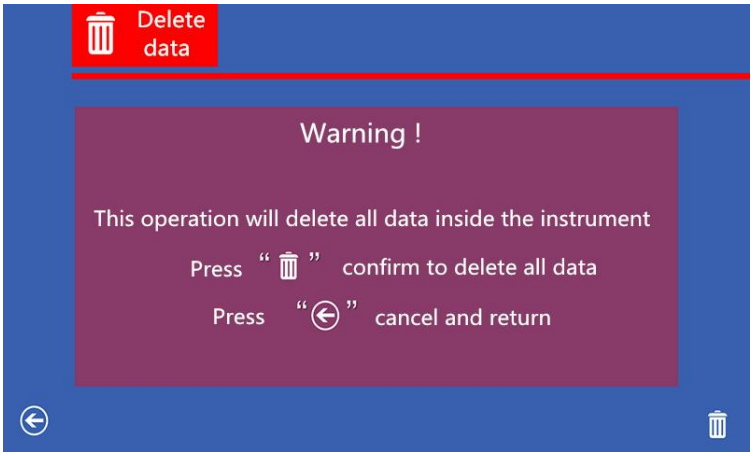
4. 6、viewing data



Select "view record" function in the main menu interface. Enter the history view interface, press the "↑" and "↓" arrows at the bottom, you can turn records up and

down, and press the right down button to print the currently viewed history.

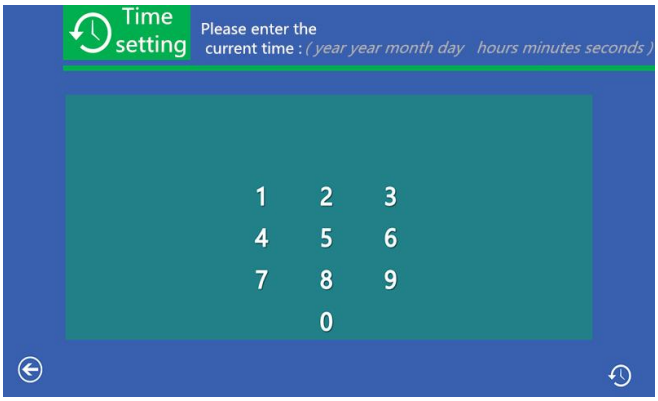
4.7、Delete data



Select the "delete data" function in the main menu interface to enter the delete data interface. At this time, press the trash can icon to confirm the deletion of all data. Press the arrow in the lower left corner to undo the deletion and return to the main interface.

(Note: data cannot be recovered after data deletion is confirmed)

4.8、Time setting



Select the " Time setting " function in the main menu to enter the time modification page. According to the above format, enter the current time, and press the

right-click time modification button to finish the modification. Press the "←" arrow to cancel the modification and keep the original time unchanged.

4.9、calibration data

Because of changing the calibration data at will, it will seriously affect the use of the instrument. So we do not open the data calibration function. If necessary, please contact our company for technical support.

4.10 、After measurement

1) Close the high-precision needle type regulating valve on the instrument.

2) Remove the adapter from the SF6 Electrical equipment.

3) Remove the quick plug between the test tube and the back of the instrument.

4) Repeat the above steps to test the next data.

5) After all tests are completed, turn off the power supply.

5. Matters needing attention

1. The instrument shall be placed in a safe position to prevent damage and violent vibration.
2. Before using the instrument, it should be charged in time.
3. When charging, just connect the power cord to the AC socket without turning on the power switch, and the instrument will automatically charge. Generally, the

charging time is more than 10 hours.

4. High capacity lithium battery is used inside the instrument because of its characteristics. Therefore, it is recommended that the instrument be able to power every 1-2 months when it is not used for a long time. To keep the lithium battery active.
5. The instrument shall not be put into the aluminum alloy packing box, and shall be placed on the test bench or instrument rack to prevent dust and moisture.
6. The instrument shall be calibrated with standard gas once a year. It can be sent to the manufacturer or authorized unit for calibration to ensure the accuracy.
7. When the concentration of SO2 and H2S in the detection gas is high, clean the pipeline with clean gas (air or nitrogen), clean the internal of the instrument, and then carry out the next measurement.
8. When the concentration of SO2 or H2S in the detection equipment exceeds the normal value, it is recommended to measure twice to confirm the result.

6. Common faults and troubleshooting

fault	Possible reasons	processing method
Dew point does not change	Gas not entering detector	Check the air circuit connection to see if the needle valve and flow valve are open
	Open circuit of sensor connecting wire	Send to manufacturer for inspection
High dew point	Gas leakage	Use the leak detector to check

		whether the air circuit leaks
	The instrument is placed for too long	Clean the air circuit with high-purity nitrogen for 30 minutes, activate the sensor
	Reduced sensitivity	Send to manufacturer for calibration
	Sensor failure	Send to manufacturer for maintenance
Low dew point	Sensitivity too high	Send to manufacturer for calibration
No change in SO2 and H2S	Gas not entering detector	Check air connection
	Open circuit of sensor connecting wire	Check the connecting line
	Sensor failure	Replace sensor
	No decomposition products in gas	normal
he detection values of SO2 and H2S are low	There is air leakage in the internal air circuit of the instrument	Check gas path
	Reduced sensitivity	Send to manufacturer for calibration
	Sensor failure	Send to manufacturer for maintenance
The detection values of SO2 and H2S are too high SO2 and H2S	Sensitivity too high	Send to manufacturer for calibration
	Filter failure	Send to manufacturer for maintenance

readings are unstable during detection	Sensor failure	Send to manufacturer for maintenance
	Circuit fault	Send to manufacturer for maintenance
Charging indicator light does not light up	Circuit fault	Check circuit
Buzzer does not sound	Battery voltage too low	Charge
	Buzzer failure	Replace buzzer
	Circuit fault	Check the buzzer circuit
The buzzer keeps ringing	Circuit fault	Inspection instrument
LCD no display	Poor LCD connection	Check the connector
	Battery voltage below 5.8v	Charge or replace the battery
	Circuit fault	Send to manufacturer for maintenance

7. Warranty and technical support

The free warranty period of this product is one year, but life-long maintenance service is provided.

In case of any fault that cannot be solved by the buyer, the buyer shall respond within 72 hours and give a solution.

During the warranty period, please take care if one of the following occurs:

1） Faults and damages caused by mistakes in use and improper disassembly.

2） Failure or damage caused by transportation, moving or falling after purchase.

3） Other unavoidable external factors cause failure and damage.

4） Damage caused by equipment water or other solutions due to improper use.

5） Damage caused by voltage when using power supply other than specified.

Product appearance, vulnerable consumables and accessories are not covered by the warranty:

Vulnerable consumables and accessories include: thermal printing paper, printer thermal block.

Technical documents: provide complete relevant technical documents and data. Technical documents include drawings, instructions, etc. The form and content of technical documents shall be as detailed and easy to understand as possible, and shall meet the work needs of design, installation and maintenance technicians.

Technical training: technical training on general maintenance work for user's operation personnel and maintenance personnel.

In the process of equipment installation and commissioning, the company arranges experienced engineering and technical personnel to provide installation and commissioning guidance and other services

Provide technical training for the buyer to the factory, and provide relevant Chinese training materials and materials.

This guarantee is valid only in the mainland of People's Republic of China.

Appendix:

Water content measurement requirements of SF6 circuit breaker

Test content	Standard（ppm ， 20℃）
The water content of the breaking unit and the pillar unit shall be measured respectively during the delivery and overhaul (before the overall assembly).	⩽150
The water content of the circuit breaker shall be measured by the inflation interface at the lower part of the pillar during handover	⩽150
During operation, the water content of the circuit breaker is measured by the inflation interface at the lower part of the pillar. The test cycle shall be in accordance with the "pre test procedures".	⩽200
During operation, if necessary (air leakage of breaking unit, disassembly of breaking unit), sulfur hexafluoride circuit breaker shall measure water	⩽300

content of breaking chamber separately at self sealing joint in header.	