

**ZXZH-II Multiple
Function SF6 Gas Analyzer**



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I Functional Overview

The ZXZH-II SF6 Gas Analyzer adopts the humidity sensor, purity, SO₂, H₂S, CO and other sensors of Finland VAISALA company. The thermal conductivity sensor and electrochemical sensor of British ALPHA company are used; at the same time, it is equipped with the most advanced ARM development technology and quality Precision sensors such as flow sensors and temperature sensors make sampling data more realistic, more reliable, and faster in calculation speed. The instrument uses a color liquid crystal display screen, the interface is friendly and beautiful, easy to operate.

The ZXZH-II SF6 Gas Analyzer uses imported sensors with reliable performance as sensitive components, and also integrates many functions such as real-time measurement, curve display, power management, time system, file system, data query, data printing, etc. Sensor technology and information technology, humanized operation and perfect function let you experience its superiority and perfection everywhere.

II Main Feature

1. Mass storage function
2. Battery level reminder
3. Good repeatability and fast response speed
4. Touch operation instrument
5. Large-screen color LCD display
6. Advanced probe protection

7. Anti-pollution and anti-interference
8. High sensitivity and good stability
9. Small and beautiful, easy to carry
10. Intuitive curve display
11. The micro water value is automatically converted into a standard micro water value of 20 °C

III Technical

1. Measuring range: dew point $-60^{\circ}\text{C} \sim +20^{\circ}\text{C}$ (support ppmv etc.)
2. Dew point accuracy: The test accuracy is better than $\pm 0.5^{\circ}\text{C}$ (within a certain range)

(When the dew point temperature is lower than 0°C , the sensor output is frost point)

3. Response time 63% [90%]

+20 \rightarrow -20 $^{\circ}\text{C}$ Td 5s [45s]

-20 \rightarrow -60 $^{\circ}\text{C}$ Td 10s [240s]

4. Resolution: Dew point 0.1°C or 0.1ppm
5. Repeatability: $\pm 0.2^{\circ}\text{C}$
6. Measurement range of gas decomposition products:

SO₂: 0 \sim 100 $\mu\text{l/l}$

H₂S: 0 \sim 100 $\mu\text{l/l}$

CO: 0 \sim 500 $\mu\text{l/l}$

HF: 0 \sim 10ppm

7. Sensitivity: SO₂: ±0.5μl/l

H₂S: ±0.5μl/l

CO:±1μl/l

HF: 0.1μl/l

8. SF₆ gas purity measurement range: 0 ~ 99.99 %

9. Measurement accuracy: within 90%~99.99%, the error ≤±0.1%

10. Gas flow: Flow adjustment A is adjusted at 0.2L/min

Flow adjustment B is adjusted to 0.5-0.6L/min

11. Probe protection: stainless steel sintered filter

12. Working voltage: 110~220VAC

13. Storage temperature grade: -40~+70°C

14. Operating environment: Temperature: -35~+60°C

Pressure: 0~20bar

Sample gas flow rate: no effect

15. Electronic mass flow meter

16. Volume weight: 340×200×120 (mm), 6.5kg

IV Introduction to system boot interface

The system boot interface is shown below:

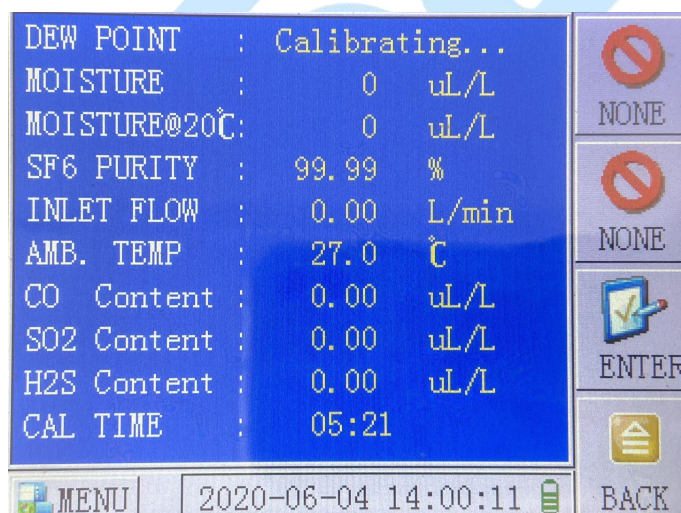
```

Loading driver programs.....
Timer, keyboard, port, acquisition OK.
Sensor initialization...
DEW POINT sensor OK.
SO2+SO2 sensor OK.
H2S sensor OK.
CO sensor OK.
Flowmeter sensor OK.
RH sensor OK.
Thermometer sensor OK.
Loading operating parameters...
System parameters OK.
File system OK.
Init. OK, tap screen to continue 03 S

```

After booting, the instrument will display the company's welcome interface.

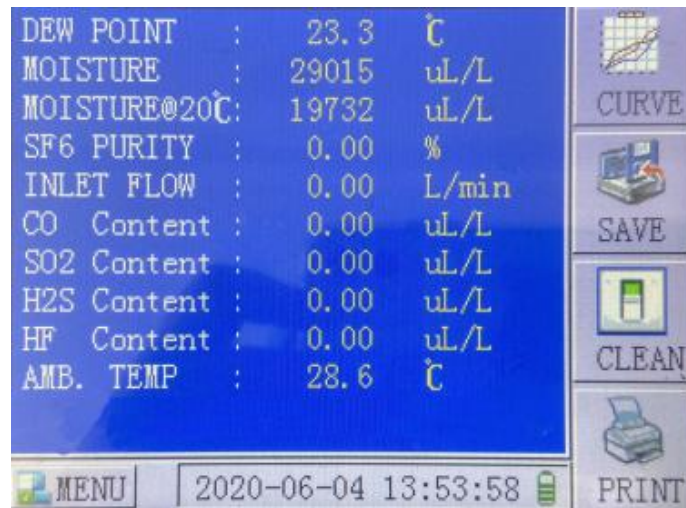
When you see the words "System initialization completed, please press any key to continue...", after about 7-8 seconds, a prompt will pop up, "Please confirm to close before ventilating..." Click on the screen to continue operation, it will display As shown in the figure, the intake air dew point calibration...



Wait for about five minutes to enter the measurement interface and perform the measurement

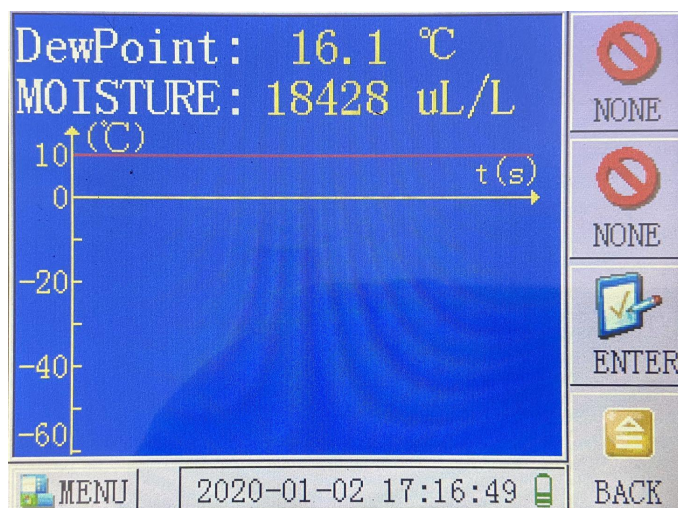
V Measurement Interface

The measurement interface is shown below:

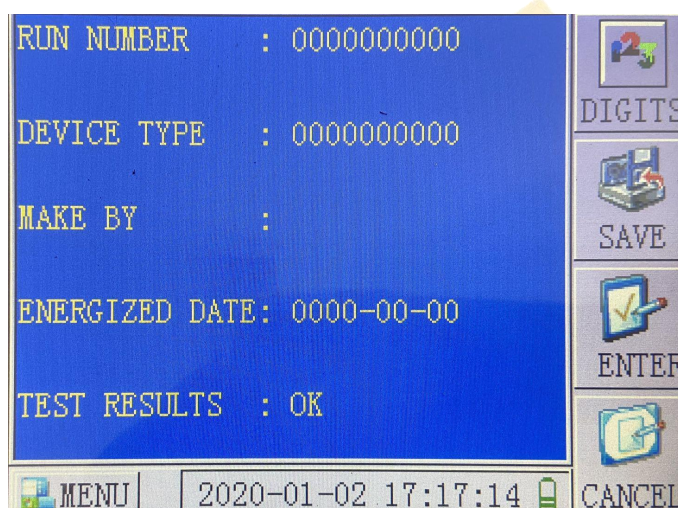


After entering the "measurement interface", first connect the test pipeline, adjust the flow A valve, the air intake flow on the LCD interface displays 0.2L/min, and then adjust the flow B valve, the air intake flow displays to 0.5-0.6L/min, waiting for the measurement result. The soft keys are: curve key, save key, cleaning key, menu key, and print key. Press the corresponding button to enter the "save interface", "clean interface", "print interface", "menu interface", "help interface". At the same time, you can also see the measured values of moisture content, SF6 purity, SO2, H2S, CO, HF, etc. The function of the purge key is: after measuring a gas, you can press this key to purge to make the remaining gas in the pipeline empty. Then make other gas measurements.

1) Click the curve key, as shown below:



2) Click the save button, as shown below:



After entering the "save interface", the soft keys are: input method, confirm key, cancel key.

It is recommended that you save the data after entering the device number correctly.

Press **【OK】** to save the data and return to the "measurement interface".

Press **【Cancel】** to return to the "measurement interface".

Press the [Input Method] key, the system will switch among the three input methods: "numeric keys", "capital letters" and "lowercase letters".

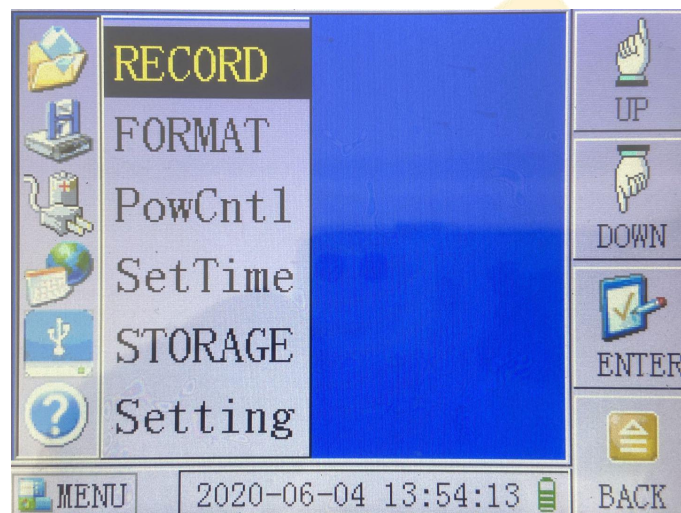
Press  **【↔】** key will move the cursor position.

Press **【+】** or **【—】** key will increase or decrease the numerical value or alphabetical order.

3) The function of the cleaning key is: after measuring a gas, you can press this key to clean, so that the remaining gas in the pipeline is emptied. Then make other gas measurements.

VI Menu Interface

The menu interface is shown below:



After entering the “Menu Interface”, the soft keys are: [Up Key], [Down Key], [OK Key], [Back Key].

In this interface, you can see 6 menu items: "History Data", "Format", "Power Saving Control", "Set Time", "U Disk Storage" and "Parameter Setting".

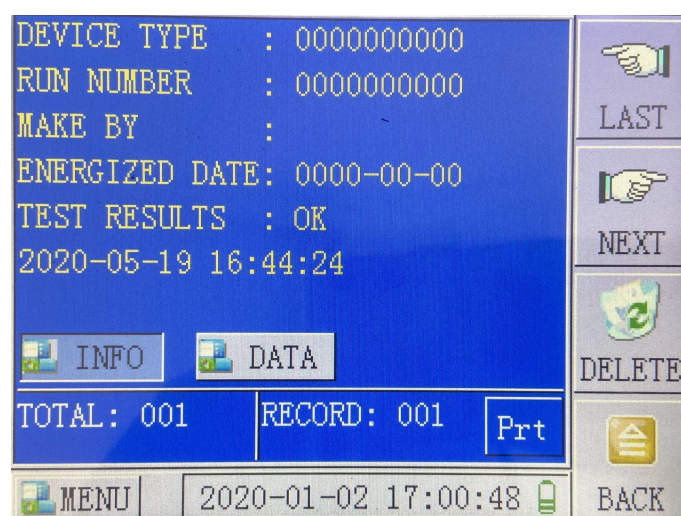
Press **【UP】** or **【DOWN】** to move the menu bar to the specified position.

Press **【OK】** key to select the menu item and enter the corresponding function interface automatically.

Press **【Back】** to return to the interface of "Measuring Interface" or "Calibration of Dew Point Sensor" (if the sensor has not been calibrated in 6 minutes).

VII Historical Data

Click the historical data button, as shown below:



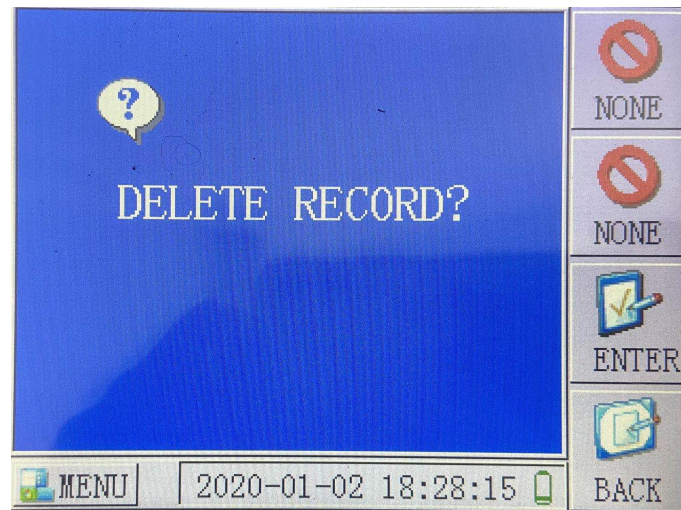
After entering the "Historical Data" interface, the soft keys are: [Previous], [Next], [Delete], and [Back].

In this interface, you can see the first piece of historical data information. If there is no historical data, the system will display no historical data.

Press **【Previous】** or **【Next】** key, the historical data of the previous record or the next record will be displayed.

Press **【Delete key】**, there will be "delete interface" display.

The deletion prompt interface is shown below:



Enter the "delete prompt" interface, the soft keys are: [OK key], [Cancel key].

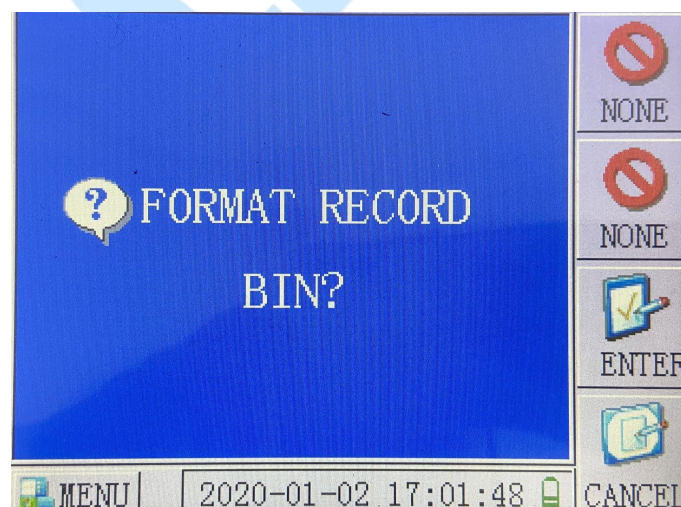
In this interface, press **【OK】** to delete the current record and return to the "historical data" interface.

Press **【Cancel】** to return to the "Historical Data" interface.

Press **【Back】** to return to the "Menu Interface".

VIII Format

Click Format, the interface is as shown below:



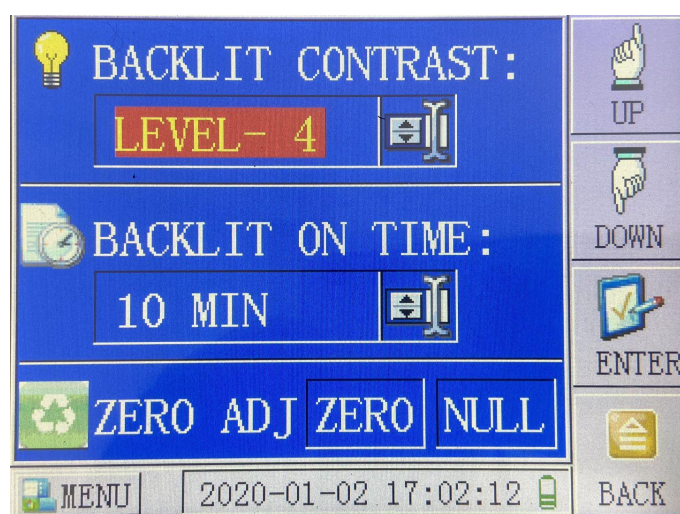
After entering the "Format" interface, the soft keys are: [OK key], [Cancel

key].

In this interface, press **【OK】** to format the memory. At this time, you will lose all historical data. So please choose carefully when operating. Press **【Cancel】** to return to the “Menu Interface”.

IX Power Saving Control

Click Power Saving Control, as shown below:



Enter the "Power Saving Control" interface, the soft keys are: [UP key], [DOWN key], [OK key], [BACK key].

In this interface, you can see two options: display delay and backlight brightness. The display delay means that if there is no key operation within the specified time, the system will automatically close the LCD screen until the display screen is automatically turned on after pressing any key.

The display delay can be set from 0 to 30 minutes and the step length is 5 minutes. 0 minutes is to turn off the display delay function.

There are 8 levels of backlight brightness (0-7), where 0 is the darkest and 7 is the brightest. Press the up key or down key to move the setting cursor

to the column to be set.

Press **【▲】** or **【▼】** will change the value in the selected column.

Press **【OK】** to save the setting parameters.

Press **【Back】** to return to the "Menu Interface".

Note: The setting of power saving mode is helpful for battery life.

X Set time

The time setting interface is shown in the figure below:

Enter the "Set Time" interface, the soft keys are: [UP key], [DOWN key], [OK key], [BACK key].

In this interface, you can set the current system time including: year, month, date, hour, minute and second.

Press the up key or down key to move the column cursor.

Press **【▲】** or **【▼】** key to increase or decrease the value.

Press **【OK】** to set the system time.

Press **【Back】** to return to the "Menu Interface".

Note: If you need to copy out the data, directly insert the U disk, click "U disk storage"

XI Matters Needing Attention

1. This instrument is a portable precision tester, so pay special attention to the following points:

It is forbidden to switch the instrument power supply in dangerous areas!

(2) It is forbidden to charge in dangerous areas!

(3) The instrument is protected from collision, squeezing and severe vibration during transportation or testing;

1) (4) During the measurement process, the flow regulating needle valve should be opened slowly, and the flow sensor is damaged; the flow rate of the measurement gas SF₆ should be adjusted at 0.2L / min, which can not only measure quickly, but also save gas.

2. FAQ

1) How long does it usually take to charge? When do I need to charge? When does charging end?

Each charging time varies according to the actual remaining power, generally less than 12 hours. When the power indicator is insufficient, it should be charged in time, and it is not appropriate to use up all the electricity to ensure the service life of the battery. The charging circuit is equipped with an overcharge protection device. When the battery is full, the charging indicator will change from red to green.

2) How long does the instrument need to be calibrated and maintained?

It is generally recommended that users check once every 2 years and once every half a year in special cases (when the air pollution is serious).

3) The instrument stagnate during the measurement process and the data drops. Why?

This is because the sensor is performing the gain regression function, that is, returning to the previous test process for verification. At this time, the interface data is not moving, but the CPU is processing the data, so the data

drops immediately after a while.

4) How to protect the sensor?

The built-in sensor of the instrument is protected by a probe protection room. When the operation is running, the protection room is automatically screened off by the detector, so that the instrument is in the measurement state, otherwise it is automatically protected when the power is turned off.

After the measurement is completed, the instrument needs to be purged with pure gas until the readings of CO, SO₂, H₂S and HF are below 10ppm, so as to extend the service life of the sensor.

XII Packing List

| NO. | name | Quantity |
|-----|-----------------------------|----------|
| 1 | Host | 1 |
| 2 | Test pipeline | 1 |
| 3 | Exhaust duct | 1 |
| 4 | power cable | 1 |
| 5 | Adapter | 1 |
| 6 | Printing paper | 1 |
| 7 | manual | 1 |
| 8 | report | 1 |
| 9 | Certificate / warranty card | 1 |

Appendix

SF6 circuit breaker water content measurement requirements (standard)

| project | standard value (u1/1, 20°C) |
|--|--------------------------------|
| Sulfur hexafluoride circuit breakers should be measured for the moisture content of the breaking unit and the pillar unit during the factory and overhaul (before the whole assembly). | ≤150 |
| During the handover, the moisture value of the circuit breaker is measured by the gas filling interface under the pillar. | ≤150 |
| In operation, the moisture value of the circuit breaker is measured by the gas filling interface under the pillar. The test cycle is in accordance with the "pre-trial regulations". | ≤200 |
| During operation, when necessary (leakage of the breaking unit, disassembly of the breaking unit), the SF6 circuit breaker should measure the moisture content of the breaking gas chamber separately from the self-sealing joint in the header. | ≤300 |