Huazheng®

HZSF-661
SF6 Gas Analyzer

USER MANUAL

Huazheng Electric Manufacturing (Baoding) Co., Ltd

Advice

Respected user:

If you are using this product for the first time, please note the following:

Before measurement, first open all the flow valves on the instrument and turn on the knob (clockwise) on the protective air chamber, and then slowly open the needle valve on the measurement pipe to regulate the flow.

When measuring, please control the gas flow around 0.2LPM.

This instrument has the function of self-check and sensor preheating, please do not skip this process in normal use to affect the measurement effect.

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I.Technical Characteristics And Parameters

1. Technical Characteristics

The SF6 comprehensive tester integrates the SF6 micro-water meter, the SF6 purity meter and the SF6 decomposition product analyzer into one, and the functions that were originally realized with seven instruments are concentrated in one instrument ,which greatly saves gas in the equipment. At the same time, reduce user workload and improves work efficiency.

•**Fast and gas-saving:** After the start-up into the measurement state, the measurement time is about 2 minutes.

•**Self-locking joint**: It adopts German imported self-locking joint, which is safe and reliable, and has no air leakage.

•**Data Storage:** With a large capacity design, up to 500 sets of test data can be stored.

•**Curve function:** The large screen curve shows the dew point measurement process.

•**Clear display:** The LCD screen directly displays dew point, micro water (ppm), SF6 purity, SO2, H2S content ambient temperature, ambient humidity, time and date.

•**Built-in power supply:** Super capacity lithium battery, enough for 30 hours of continuous operation.

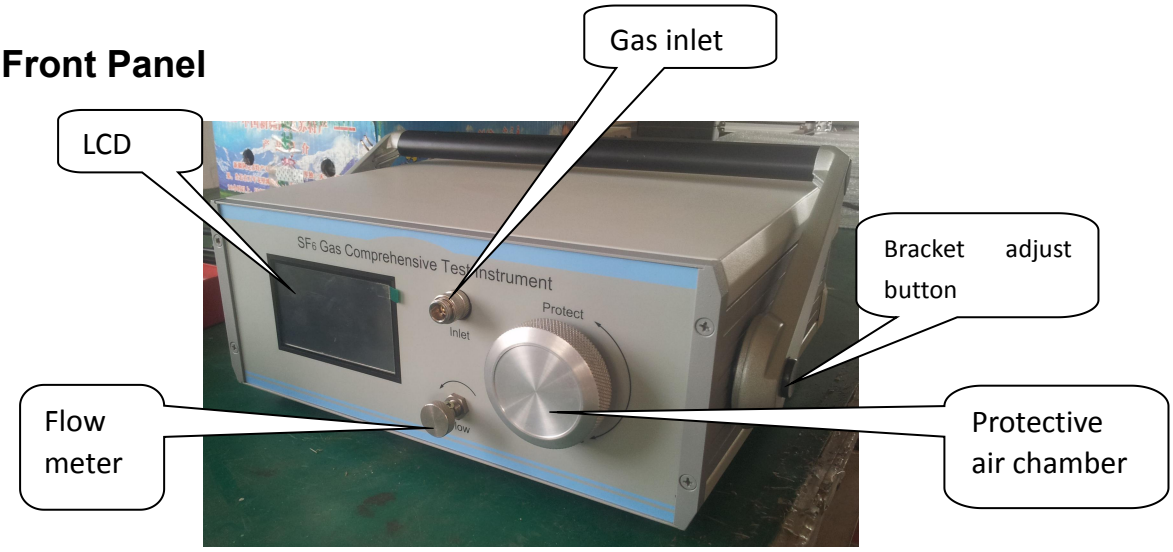
- Electronic flow: built-in electronic flowmeter, the whole process of digital display flow, and with flow over-limit alarm function.
- Intelligent cleaning: built-in micro air pump can quickly clean the pipeline after measuring, and can also set the cleaning time.
- Open calibration: this instrument has calibration function, which can complete the whole calibration work only by operating on the instrument.
- Data processing: built-in printer can selectively print or upload the saved data to the computer.

2.Technical Parameter

Purity	Measuing Range	0%~100%
	measurement accuracy	±0.5%
	measure time	<2mins
Humidity	Measuring range	－60 ℃～+20 ℃
	measurement accuracy	±0.5℃（－80℃～－60℃）
	Response time（＋20℃）	63% need 5S, 90% need 90s
H2S	Measuing Range	0~200ppm
	Minimum detection	≤0.1ppm
	accuracy	±1%
	stability	0~200ppm
	Repeatability	≤2%
SO2+SOF2	Measuing Range	0~100ppm
	Minimum detection	≤0.1ppm
	accuracy	±0.5%
	stability	0~100ppm
	Repeatability	≤2%
CO	Measuing Range	0~1000ppm
	Minimum detection	≤1ppm
	accuracy	±0.5%
	stability	0~1000ppm
	Repeatability	≤1.5%
HF	Measuring range	0~20ppm
	Minimum detection	≤0.01ppm
	accuracy	±0.5%
	stability	0~20ppm
	Repeatability	≤2%
Ambient temperature	－40℃～＋70℃	
environment humidity	0～100％ RH	
power supply	AC 220V	
	Built-in rechargeable battery	
Battery performance	Charging time: 20 hours; use time is more than 10 hours.	
Weight	8Kg	
Size	450×150×300mm^3	
Operating temperature	－40℃～＋80℃	

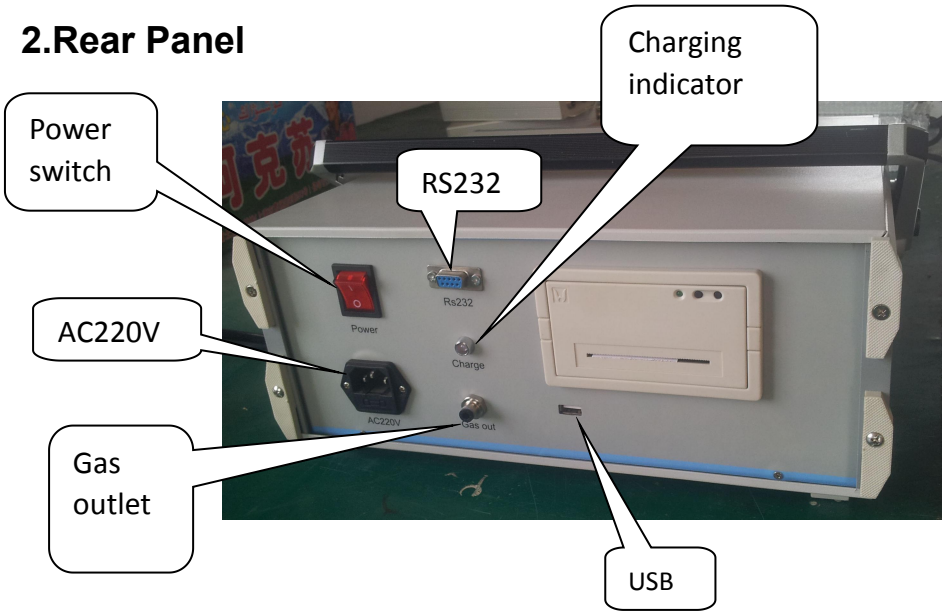
II.Panel Instruction

1.Front Panel



Note: The angle of the bracket can be adjusted by simultaneously pressing the bracket adjustment buttons on both sides.

2.Rear Panel



III.Measurement

1. Connect SF6 Equipment

Connect the threaded end of the measuring pipe to the switch joint, tighten with a wrench, and close the needle valve at the other end of the measuring pipe;

Then insert one end of the quick connector on the test pipe into the sampling port on the comprehensive tester; connect the exhaust pipe to the air outlet;

Finally, connect the switch connector to the SF6 electrical equipment measurement interface and tighten with a wrench.

2. Initialization

Turn on the instrument power switch and the instrument enters the initialization self-checking process.

3. Check The Power

This instrument is recommended to use direct current.

When using DC power, please check the battery level displayed in the upper right corner. If the battery level is lower than about 30%, please turn off and charge it.

4.Start Measuring

After the completion of preheating and self-inspection, the instrument will automatically enter the "main menu". Press the "data measurement" button to enter the measurement interface and automatically measure. At this time, open the flow valve and chamber protection knob on the front panel of the tester, and then adjust the flow to 0.2LPM by adjusting the needle valve on the measurement pipe.

5. Store Data

After the device measurement is completed, you can save the data in the instrument, press the “Save” button to call up the operation menu. The specific operation mode is shown in the next section.

6. After the measurement is completed, close the needle valve on the measuring pipe and the regulating valve on the comprehensive tester. Remove the adapter from the SF6 electrical equipment. If you need to continue measuring other equipment, please do not turn off the power ,follow the steps above to make the next measurement.

7. After the measurement is finished, turn off the power.

IV.Menu Operation

Enter the following main menu after preheating and self-check：

Date testing	Historical data	Basic setting
calibration data	Diagnostic system	Help

1、Data measurement

Click to enter the “Data Measurement” interface and automatically measure. The content of each component in the current gas is directly displayed on the screen. The current ambient humidity and temperature are displayed below. The functions of the right buttons are as follows:

Retest: If the measurement result is not satisfactory or needs to be re-measured, press this button to re-measure;

Stop: Press this button to stop the current operation during the measurement process or cleaning process;

Cleaning: If the measurement is not completed, please press the stop button. When cleaning, you can use the return button to enter other function interface. At this time, the cleaning will not stop automatically according to the set time. If you return to the measurement interface again, if it exceeds the setting. The time is automatically stopped;

Please remove the intake and exhaust pipes before cleaning.

Save: Click the “Save” button to enter the save interface, and the “OK” button to save the data;

Back: Press the "Back" button to return to the main menu or the previous menu.

2、Basic Settings (**please check whether the content of basic Settings conforms to the requirements of this measurement before measuring; if not, please make appropriate modifications**)

Click to enter the "basic Settings" interface. Click the red data section to change the current value:

Time: can be the year before last, month, day, hour, minute to change;

Setting of handover value: the handover value of this measurement can be set. Please set the value before using the instrument.

Flow alarm value: the upper limit of flow warning can be set when measuring, and when the flow exceeds this value, it will alarm.

Cleaning time setting: the cleaning time can be set or the cleaning key can be

pressed multiple times on the measuring interface.

3、historical data

Click to enter the "Historical Data" interface, press the left and right keys to select the data to be viewed, press the "Delete" button to delete the currently viewed data, press the "Print" button to print the currently viewed data, and the upper left corner has an upward Keypad, this button is the data upload button. When using this function, follow these steps:

(1) connect one end of the usb-rs232 data cable to the computer, and insert the other end into the RS232 port of the instrument;

(2) open the "super terminal" on the computer and press the following Settings:

Port: select COM port. If there are more than one COM port to choose from, please remove the irrelevant COM line from the computer and reopen the software setting.

Baud rate: 9, 600

Data bit: 8

Check bit: NONE

Stop bit: 1

Flow control: NONE

③、Select the data to be uploaded through the "left and right" button on the instrument, click the upload button on the instrument, and the selected measurement data will be automatically uploaded to the "super terminal" software. WINDOS XP and previous systems are equipped with "super terminal" software, such as the system did not find the relevant software, please download online (serial debugging assistant, super terminal and other software can achieve data upload)

4、Diagnostic system

Click to enter the "instrument self-check" interface, and the instrument will automatically conduct self-check on sensors and electronic flowmeters, etc. After self-check, it will automatically enter the main menu. This function will be automatically executed before starting up, without manual execution.

5. Data calibration

This function can be used to calibrate the sensor configured. The instrument has

been calibrated when leaving the factory. Please do not operate this function easily, or it will cause inaccurate measurement. Operate only when the instrument has passed the calibration age and needs to be re-calibrated. If recalibration is required, the company's personnel shall be responsible for it and follow the following methods:

1). Prepare the standard gas (such as SF6 purity of 89% standard gas, concentration of 100ppm H2S gas, etc.), cylinder pressure reducing valve, intake pipe, exhaust pipe, wrench, etc.;

2). Connect the pressure reducing valve to the standard gas cylinder, then connect one end of the intake pipe to the pressure reducing valve through the adapter, insert the other end into the air inlet of the instrument, insert one end of the exhaust pipe into the exhaust port of the instrument and put it on the other end. outdoor;

3). Open the pressure reducing valve and adjust the outlet pressure to about 0.3MPa;

4). The instrument is turned on, waiting for the instrument to warm up and the self-test process is over;

5). Click the “Data Calibration” button on the main interface to enter the calibration interface, click “Secret”, enter the default password “888888” and press the enter key to enter the sensor selection page, click the sensor to be calibrated, and the calibration page of the sensor pops up.

6. Open the flow valve on the instrument and slowly open the needle valve on the intake pipe so that the flow rate is around 0.2LPM. At this time, the “current voltage” will continue to increase. When the data is basically stable, click “Calibration value”. Blank space, enter the nominal value of this gas: such as 89.0 (the value must be decimated if there is no decimal, if there is no decimal, write the decile to "0", such as 89.0), and then press the enter key to save the data. At this point the data of the "current value" has changed and is very close to the nominal value.

7). Return to the measurement interface to check whether the current measurement data is floating up and down around the standard value. If the deviation from the nominal value is large, please re-enter the data calibration interface, click the “confirm” button again, check the measurement result again, and repeat the

calibration until the results are satisfactory.

V.Remarks

1. The instrument should be placed in a safe position to prevent damage and avoid severe vibration.

2.Before using the instrument, it should be charged in time.

When charging, just plug the power cord into the 220V socket. The instrument will automatically charge without turning on the power switch. The charging time usually takes more than 20 hours.

3. When the instrument is not in use, it should be placed in an aluminum alloy packaging box and placed on the test bench or instrument rack to prevent dust and moisture.

4. The instrument is calibrated once a year with standard gas. Can be sent to the manufacturer or authorized unit for calibration to ensure accuracy.

5. When the concentration of SO2 and H2S in the test gas is high, the gas remaining in the airway should be removed before the next measurement.

6. When the concentration of SO2 or H2S in the detected device exceeds the normal value, it is recommended to measure twice to confirm the result.