

Dear Client

Thank you for Purchasing our **HTJL-H High Precision SF6 Gas Leak Detector**. 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!

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◆ **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.

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Warning:

The user has to confirm whether the vacuum pump has been filled with oil before any use of the instrument except there is a special announcement. Please add the oil to the pump or it will be damaged. Tear down the outer cover of the main engine and refer to the instruction of the vacuum pump to add the oil.

When the oil is added, the instrument cannot be overturned in the process of transporting.

I. Product introduction

HTJL-H SF6 Gas leak Detector's working principle is that when the concentration of sulfur hexafluoride in the air changes its degree of ionization under an electromagnetic field of high frequency varies at the same time. The concentration degree of sulfur hexafluoride can be displayed by a detection of the degree of ionization.

This instrument is a small vacuum pump with its searching unit and main engine separated. Though small and light, it has a high sensitivity and stability. Moreover, it responds fast and produce no toxic gas in its component(esp. the searching unit).

This instrument has a new function of alarming setting. When the gas to be detected has a concentration degree more than or equal to the pre-determined value, it alarms automatically.

This instrument is used exclusively in the detection of sulfur hexafluoride equipment or volume's leakage by the industry of electricity, railway, electronic production, chemical engineering, fire equipment and atomic physics research institute, etc. It can do qualitative and quantitative detection quickly and accurately.

II. Technical data

Range of measurement (SF₆) : 0.01ppm~500ppm (Volume ratio)

Response time: not more than 3 seconds

Indication pattern: crystal digital display harmony, light signal alarm

Setting range of alarming: 0.01ppm~500ppm (Volume ratio)

Pumping speed of vacuum pump 0.5 litre/second

Length of the vacuum tube: 4 m

Continual working time: not more than 3 hours

Working condition : alternating current power supply 220V 50Hz

Environment temperature 7°C-40°C

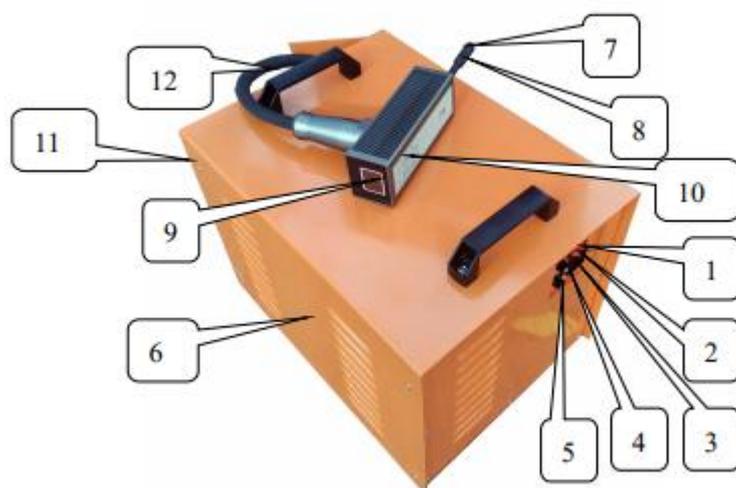
Relative humidity not more than 85%

Rate of work: approx. 180W

Total weight : approx. 30kg

III. Product structure

1.The layout of each control unit on the instrument panel is shown in the figure (1)



- 1 detection switch
- 2 power switch
- 3 power outlet
- 4 ac fuse (0.5A)
- 5 dc fuse (5A)
- 6 the host
- Seven of the needle valve
- 8 handheld probe
- 9 LCD
- 10 buttons
- 11 ionization chamber observation window
- 12 gas electric tube

IV. Operation procedure and method

1. Plug in the power supply and turn on the "power switch", then the motor's starting sound can be heard.

Turn on the "detection switch". If you can see a faint dark purple excitation light ("initiation") in the window above the probe, and the base value of the lower side of the LCD screen is close to the value marked on the nozzle of the instrument, the measurement can start. (after starting up, the large value in the middle of the display screen is the concentration of SF₆ gas detected in real time, so it is unnecessary to check the table again. The small value below is the base value, which is only used as a reference for the stability of the instrument.)

3. If not, you can plug the inlet of the probe (needle valve) with your finger to improve the vacuum of the vacuum system. If the probe is blocked within 10 seconds, wait 10 minutes and then block the probe again. The time of blocking the probe shall not exceed 10 seconds, otherwise the relevant electronic devices will be damaged.

4. The instrument will start up for 60 seconds and set the zero point by self-calibration. If the zero point is not reached within 60 seconds, the probe will be held in the air and press "cancel" to set the zero point.

5. After 10 minutes, after the instrument reaches a certain vacuum degree and the base value is basically stable, move the probe to the place under

inspection. If there is a gas leak, the reading on the LCD screen will increase to show the specific concentration of volume.

6, press “√” key to enter setup interface can change the emergency alarm value (using “◀”、“▶” The key changes).When the volume ratio is greater than the alarm point, the device will emit a beeping alarm.



V. Adjustment method

1. Making up different concentration degree sulfur hexafluoride
 - (1) Gas distribution: Needle cylinder is used;
 - (2) Standard gas: use qualified pure sulfur hexafluoride to make up six groups of sample gas with concentration degree of 0.01, 0.1, 1, 10, 100 and 500.

(3) Operation: Extract 1 millilitre of pure sulfur hexafluoride with a one-litre cylinder from the steel bottle. Inject it into 100-millilitre cylinder and dilute it with air outdoors. The concentration degree is 10000ppm. Again, extract 5 millilitre 10000ppm sulfur hexafluoride with a twenty-milliliter from a 100-millilitre cylinder and inject it into another 100-millilitre cylinder. Dilute it with air outdoors to 100 millilitres. Its concentration degree is 500ppm. The same operation can be applied for 100ppm, 10ppm, 1ppm, 0.1ppm and 0.01ppm. Each should be marked to be tested.

2. Demarcation of the leakage detector:

When the instrument is shut down, press OK to switch on the detector(enter the interface of detection demarcation). After 15 minutes the machine gets stable. Press ▲ & ▼ at the same time to enter demarcation interface. At this time the demarcation number is shown on the interface. Press + or – to alter the number of points which need to be demarcated. Press OK and then demarcate the first point. Input O P P M and then press OK. Input 1010, which is the first point's collecting number. Press OK and then QUIT to enter the demarcation interface. Thus the demarcation of the first point is finished. The detection of the prepared SF₆ gas begins. Use 20-millilitre cylinder to extract 10 millilitre of the prepared sulfur hexafluoride with different concentration degree. Take off the needle of the cylinder and connect the intake port of cylinder and probe. The probe will take in the gas to be detected by itself. At the moment the signal value on the lower left corner of the LCD of the detector will increase. Record the reading when the displayed data turns stable (Record the seven sample gases in turn) . The interface shows the demarcation point now. press + or – to alter the number of points to be demarcated and press OK. Then demarcate the first point (zero point). Input O P P M and press OK. Input the collecting number 1010 at zero point and then press OK. Press ▼ again to alter the point number to the second point(0.01 P P M) and then press OK again to input the collecting value of 0.01

PPM sample gas. Press OK and then ▼ to go to the next point. In this way the demarcation of all the seven points is finished (six sample gas value and one zero point value). After all the sample gas's demarcation is finished, the user can restart the leakage detector for the next detection.

VI. Announcements

1. Please keep the body of the whole instrument clean and tidy. Avoid the entrance of any impurities to enter the probe or the vacuum pump. The machine should be kept in a dry and windy place to avoid humidity.

2. Since the probe needle valve has been adjusted well before it is sold, do not adjust it in normal condition. If the place of the needle valve changed due to any improper use or uncertain reason, the user should readjust it till the intaking gas reaches an appropriate amount. The three adjustable potentiometer inside the searching unit has been set for its output voltage and signal output value before selling. In general it doesn't need to be adjusted again. If there is a need to adjust it, please refer to the technical parameter of the instrument to do it, or the inside component may be burnt. Each time when the inside potentiometer is adjusted, the instrument has to be demarcated too. Or else the detection data will not be accurate.

3. After a long-term use the O-like rubber washer at the connection point of the needle valve gets aged. As a result, the leakage at the connection point affects the vacuum degree. So it should be changed at once.

4. Do not overturn the detector or shake it violently. It may cause abnormal state of the searching unit or other movable components and affects the detector's function.

5. If there is no signal or a snowflake screen when the detector is started, press ▼ and then QUIT to refresh it.