Huazheng®

CS2674AX
Withstanding Voltage Instrument

Huazheng Electric Manufacturing (Baoding) Co., Ltd

Attention For Safty

1. During the test, the operator can not touch the position or area described below; otherwise it will cause electric shock accident.

（1）High-voltage output port of the tester；

（2）Connected with the tester's alligator clip test leads；

（3）Products being tested (DUT)；

（4）Any object connected to the tester；

2. To prevent electric shock accidents, please follow the following safety steps:

(1)To prevent electric shock accidents in the use of tester, user had better wear insulated rubber gloves and then engage in operation to the tester.

（2）Safe and reliable ground: On the rear panel of this series tester, there is a ground terminal, this terminal should be connected to ground. If there is no reliable grounding, once short circuit exist between the power supply and case, or between and high-voltage test line and case during the testing process, the case will have a high voltage existance, which is very dangerous. So long as any contact of the case, person may have resulted in the occurrence of electric shock, that is why this ground terminal must be reliable connection with the earth.

（3）When the tester's power switch is turned on, please do not touch the any items which is connected to the high voltage output port;

3. The following situation is very dangerous：

（1）Press "STOP" key, high-voltage test lamp is still lit。

（2）Displayed voltage value is not changed but high-voltage indicator is still lit. Encounter the above situation, please do not use the tester, turn off the power switch and unplug the power cord. Contact with manufacturer or its designated dealer immediately.

Dear user:

Thank you for choosing CS2674AX Withstanding Voltage Instrument.

We hope that this instrument can make your work easier and more enjoyable, so that you can get the feeling of office automation in the test and analysis work.

Before using the instrument, please read this manual, and operate and maintain the instrument according to the manual to prolong its service life. "Just a light press, the test will be completed automatically" is the operating characteristics of this instrument.

If you are satisfied with this instrument, please tell your colleagues; if you are not satisfied with this instrument, please call (0312) 6775656 to tell you to serve you at all times-Baoding Huazheng Electric Manufacturing Co., Ltd., our company will definitely make you satisfied !

Contents

I.Unpacking and installation tester

1.Check the received instrument

When you receive Allwin’s equipment, check the tester follow the below steps：

（1）The instrument box is intact; if damaged, we recommend that you do not unpack the box, but contact with the company's distributors or Allwin Instrument Company.

（2）If the instrument package is good, then please check what you have ordered instrument model are the same with the model label on the box; if not, please contact Allwin dealer or Allwin company

After checking through 1.1.1 and 1.1.2, if there is no problem, you can unpack the carton and check the instrument your ordered

2.Check test clips of the tester in the carton.

Please check your accessories within the box to see if the test clips are completed;

Power cord, CS26016-6 high voltage test clip(red), CS26009-3 test clip(black).

3.Carton and packing materials

Please save the original packing materials for use in future transportation.

4.safety rules for using the instruments

In the use of equipment, be sure to follow the following safety rules:

（1）Do not use the tester in flammable gases environment

In order to prevent the occurrence of an explosion or burning, do not use the tester in alcohol, thinner or other flammable material next to the tester. Also do not use the tester where contain flammable gases in the environment.

（2）Do not use the tester in heat or direct sunlight places

Components that are inside the instrument are precision devices used. User should avoid operating it where in the direct sunlight or where has high temperature. This will accelerate the aging of the instrument or Shorten the life of the tester but also result in damaging to the tester.

Instrument usage temperature range: 0 º C ~ +40 º C;

Instrument storage temperature range: -20 º C ~ +70 º C;

（3）Do not use the tester in humidity environment

Do not put the instrument on a boiler, kettle, humidifier water or moist environments. Condensation of water droplets may lead to Internal short-circuit and damage the instrument, even if it can cause serious fires. If the humidity in the storage over the regulated humidity, the test instrument must be completely dry before use.

Operating humidity: 20% ~ 80% RH

Storage humidity range: less than 90%

（4）Do not use the tester in dusty environment

Dusty environment may make the instrument internal short circuit caused the fire.

（5）Do not use the tester in poorly ventilated environment

Instrument has forced air-cooled cooling system; heat dispersion within the instrument will not go inside the instrument overheating and damage. Please do not accumulate other items in air inlet and outlet place to avoid blocking duct.

（6）Do not use the tester on the sloping surface or shaking of the places

Instrument on a sloping surface or shaking of the place is easy to drop and break down;

（7）Do not use the tester beside the sensitive receiving equipment or testing equipment

If the tester is near these equipments, high voltage generated from the tester will interference work of them.

（8）The input power of the tester must have a separate switch control

The input power of the tester must have a separate input power switch control, once meet the emergency situation, user should cut off the power switch immediately then deal with the accident.

5.The provisions of the operator

The tester output voltage is sufficient to cause death, it must be qualified personnel to operate the test instrument;

（1）Qualifications

Operators must be skilled personnel to operate, must understand the basic concepts of the voltage, current and resistance;

Operator must know during the high-voltage test, high voltage is generated form high

voltage output port, after flowing from device under test(DUT), by the end of RETURN cable into the tester inner; If you touch any of the items, it will be caused high-voltage electric shock.

（2）Safety Rules

The operator must go through special training to understand the various safety procedures and safety requirements of the test, read carefully of the manual before operating of this tester.

（3）Dress

The operator can not wear clothes decorated with metal or wear metal accessories, such as watches, metal bracelets. Non-cardiac patients or those who wear a pacemaker can not operate the tester.

6.Check power supply voltage

（1）Input supply voltage apparatus

This instrument uses 220V AC ± 10%, 47 ~ 63Hz single phase power.

WARNING: To prevent malfunction or damage to tester, please use the tester in the specified voltage range.

7. Check and replace fuses.

Warning：

In order to avoid the accident of electric shock, before the replacement of the fuse, please turn off the power switch and unplug the power.

Ensure the specifications and characteristics of the used fuse is proper with the user manual list.

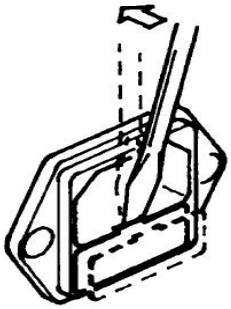
Input voltage range	Frequency range	Fuse
200V～240V	47Hz～63Hz	8A

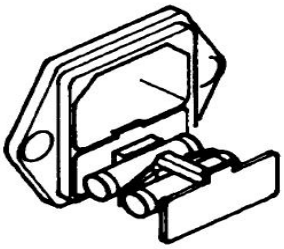
1.7.2 Fuse Replacement

Replace the fuse, follow these steps:

(1) Turn off the power switch and unplug the power cord;

(2) Fixed with a screwdriver to open the fuse holder as shown below;





(3) Check and replace the fuse, it must be the same with specifications listed in the 1.7.1;

(4) The fixed fuse holder should be back in its original location.

1.8 Grounding

Warning： * Improper grounding or not grounding may cause electric shock;

To ensure safety, we must ensure a reliable ground equipment;

There are two ways to ensure reliable grounding equipment, please select one of the two methods to connect the instrument to ground reliably.

(1) Connect the power cord into a grounded three-phase power outlet.

If the three-phase power supply plug is not grounded, the instrument's rear panel has a protective earth terminal, connect the protective earth ground terminal to safety ground. Ground terminal on the rear panel as shown below.

II. Notice Before Use

Before operation, please read the notice carefully。

Warning：The maximum output voltage of this tester is 20kV; When user is operating, user must follow the warning, notice and other explanation.

1.Prohibit operation

（1）Do not press the power switch continuously and fastly.

If you want to turn on the power switch after turning off the power switch, make sure the power switch is turned off after a few seconds or longer. Do not turn on or turn off the power switch repeat and frequently. When the tester outputs high-voltage, don’t turn off the power switch, except in urgent cases can perform this operation.

（2）High-voltage output and ground could not be short-circuit.

The high-voltage test leads of the tester are strictly prohibited to be short-circuit with the

AC power cord or other electrical equipment connected to the ground. If short circuit happens, shell of the tester maybe with high-voltage, which can easily result in electric shock. Ensure protection of ground terminal on the rear panel have a reliable connection of safety ground. See detailed grounding methods on items 1.8.

（3）Do not use external voltage.

Do not apply the high voltage generated by external device to high-voltage output port. Because the instrument's internal voltage-meter can not as a separate voltmeter used. External voltage may damage the voltmeter.

2.Emergency treatment

In case of emergency (electric shock or DUT burning), must take the following two actions and the two actions must be all completed.

(1) Turn off the power switch;

(2) Unplug the power cord of the instrument.

3.Precautions during testing

3.1 Wear insulated gloves against electric shock

To prevent electric shock accidents in the use of the tester, you should wear insulated rubber gloves then engage in electricity work.

3.2 Connect the test leads and current measurement port

Connect the test leads in the current measurement end, when the tester is used, in any case, user must check to see whether this test line is not connected, loose or fall off. Connect the test leads with the device under test (DUT), be sure to connect DUT to current measurement terminal then connect DUT to high-voltage terminal. If test leads in current measurement terminal are not connected well or off-line, it is very dangerous for the whole DUT maybe filled with high-voltage.

3.3 Connect the test leads to high voltage output

After connected the test line of current measurement, then connect high-voltage output line obey the following procedure:

(1) Press [STOP] key.

(2) To confirm the test light does not light.

(3) High-voltage output cable plugs into the high voltage output port.

(4) 3.4 Replace DUT

(5) When one test is completed, the replacement of another DUT, please confirm:

(6) (1) Tester is in the "reset" state.

(7) (2) Test light is not blinking, the discharge lamp is not lit.

(8) (3) LCD voltage display number is not beating.

(9) Warning: Replace the DUT, do not touch high-voltage probe!

3.5 In testing status

When the tester is in testing status, test leads, DUT, test probes, and high-voltage output are all with high voltage, do not touch any part of the test loop.

Note: When the host is high output state, do not touch any part of the test circuit to avoid electric shock!

3.6 Test Termination

When the test has come to an end or without the use of tester or the tester is no longer used, or user is left, be sure set power switch as OFF. That is to say, turn off the power switch.

3.7 After the test, user must confirm the following:

At any time, before touch high-voltage leads, high voltage output or the DUT, make sure that:

(1) Power switch is off, the displayer does not light.

(2) After IR test or DC test, the test body maybe still exist high-voltage after the power switch is off, so it still needs some time to fully discharge. Even if test is finished, please do not immediately touch any place where may cause electric shock.

3.8 Attention

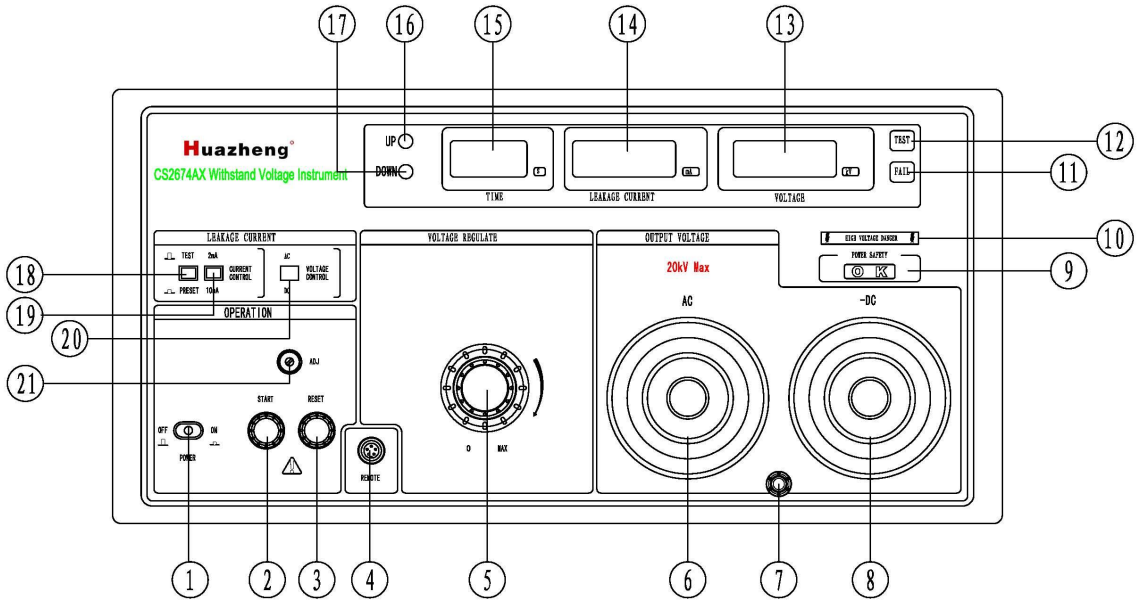
CS2674AX hipot tester is without over zero start function, in the moment of start button pressed, high voltage output may from the sine wave peak or trough of the sine wave; which may generate high voltage overshoot. Also, if turn off the power switch, high voltage overshoot also may be caused. Therefore, using before the tester output the high voltage, operator should adjust the voltage knob to zero firstly and then start the tester, rotate of the voltage regulating knob slowly to the required voltage value.

III.Front Panel

（1）Front panel illustration

（2）Rear panel illustration

（1） Front panel



1、 Power switch: It's used to control whether turn on/off the power

2、 Start：Pressing it, the test light illuminates and the instrument begins to work.

3、 Reset: Pressing it, the test light goes out. No high-voltage is output at this moment.

4、 Remote control interface: Connecting with remote control test switch.

5、 Voltage knob：Rotating it can set the output voltage from 0k V to 20kV；

Anti-clockwise for small and vice versa for large.

6、 AC high voltage output ports;

7、 testing grounding ports;

8、 DC high voltage output ports;

9、 Power supply safety detecting indicator light "O K"

10、 High voltage output indication

11、 Over run light: When light is on, it indicates the tested devices overrun is disqualified.

12、 Test light：If the light illuminates, it shows current has output, contrariwise, the current has been cut off.

13、 Voltage displays：AC/DC 0.03～19.99kV；

14、 Leakage current alarm value display：0.3mA～10mA；

15、 Time displays: 1～999s count down.

16、 UP key

17、 DOWN key

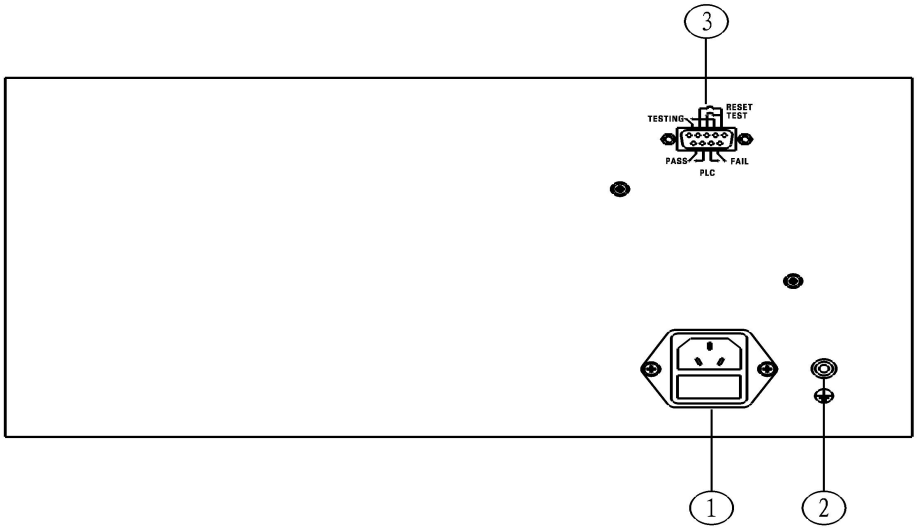
18、 Test /pre-set key

19、 2mA/20mA switch gear

20、 Voltage-switching converter: normal for AC, pressing it for DC;

21、 Alarm value of leakage current adjustment button: Press preset switch, with leakage flow-away switch, the leakage current can be set from 0.3mA to 10mA arbitrarily.

（二）Rear panel



1. Input power supply socket

Three core two-phase power socket. There is fuse in the power socket.

2.Protective earth

The protected earth terminal needs to be reliably connected to the protective ground. Otherwise, the case of the tester may be filled with high-voltage and cause the electrical shock.

3. PLC interface

Read the details on chapter 6；

IV.Function outline

1.Outline

2.Function introduction

1.Outline

This hipot tester is LED displayed tester, the test time, voltage and current can be displayed simultaneously. The breakdown voltage and current can be displayed in real time. Pre-set leak current can be set arbitrarily. The time resolution is 0.1s, time set range from 0.0s to 999s. In addition, it is equipped with PLC interface.

Standards:

IEC60065: Safety for audio, video and similar electronic apparatus

IEC60204-1: Safety of machinery

IEC60335-1: Safety of household and similar electrical appliances

IEC60598-1: Safety of lighting equipment

2. Function introduction

（1）Check the input power connection

To ensure operator safety, the hipot tester's shell is ground I type of work, but when the input power supply is with wrong polarity (correct connection is that the left is neutral, the right is phase and the upper is ground), the shell may be with electric and cause danger. The hipot tester comes with power safety detection function, there is an "OK" indicator lamp on the front panel, if the "OK" indicator both lights, power input is correct, you can press the start button, if either "o" or "k" not bright, the input power is error, please do not start the hipot tester and check the input power supply.

（2）Timer

When the test time is set (greater than 0), after the test is begun, the counter will begin to reverse, after the time value reached 0,the tester will cut off the output voltage automatically. When the test time is set to "0.0s", the tester will continue testing until user presses the "STOP" button or set the "reset" signal enable. Anyway, whether it is time testing or continuous testing, users can stop the tester by pressing the "STOP" button or

enable the “reset” signal .

（3）Remote interface、PLC interface

This hipot tester can be equipped with remote control gun or the PLC interface to start or reset.

（4）Danger indicator

To ensure operator safety, the danger indicator will be lit if there is high voltage. After the hipot tester starts to test, If the output voltage is lower than the setting voltage, the danger indicator will flash. If the output voltage is higher than the set voltage, the danger indicator will bright normally. Even the withstanding voltage tester is in the stop status, if high voltage output is larger than the setting voltage, the danger indicator will light to warn there is high voltage output, users should not contact any object in the H.V output ports to prevent electric shock.

V.Specifications

This chapter introduces the technical parameters of various testers in detail.

Model		CS2674AX
ACW	Output voltage range	（0.00~20.00）kV
	Maximum output power	200VA
	Maximum rated current	10mA
	Current gear	2mA、10mA
	Output waveform	Sine wave
	Output waveform distortion	≤5%
	Testing time	0.0s～999s 0.0=continuous test
DCW	Output voltage range	（0.00~20.00）kV
	Maximum output power	200VA
	Maximum rated current	10mA
	Current gear	2mA、10mA
	Ripple factor	≤5%
	Testing time	0.0s～999s 0.0=continuous test
Voltmeter	Range	（0.00~20.00）kV

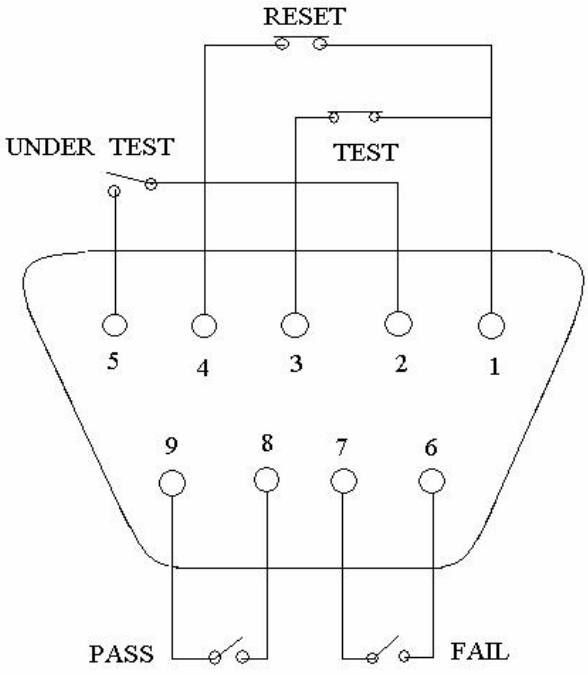
	Accuracy		±（5%+3dgt）
	Resolution		10V
	Display value		Root mean square
Ammeter	Measuring range	AC	0.100mA ～ 10.00mA
		DC	0.100mA ～ 10.00mA
	Resolution		2mA Gear：1uA，10mA Gear：10uA
	Measurement Accuracy		±（5%+3dgt）
Timer	Range		0.0s～999s
	Minimum Resolution		0.1s
	Accuracy		±（1%+50ms）
PLC interface			Yes
Remote control interface			Yes

5.1 Technical parameters

VI.PLC interface

There is remote control connection terminal on the back plate of the tester. This terminal can connect to remote manipulator to operate. It is a standard 9PIN D type terminal, with the following signals: connection test signals, reset signal, signal under testing, test pass signal, test fail signal.

1.Input signal & Output signal of PLC



2.Connection

TEST control: The control switch is connected between PIN 1 and PIN 3.

RESET control: The control switch is connected between PIN 1 and PIN 4.

Signal output under testing: Between PIN 2 and PIN 5.

Test fail signal: Between PIN 6 and PIN 7.

Test pass signal: Between PIN 8 and PIN 9.

3. Explain the Input & Output Signal Connection

This tester equips with remote control joints, and the TEST and RESET function of this instrument can be manipulated by the outside remote control device. These joints provide the power supply that holds control function, and thus the “Momentary Contact” switch must be used to act as the controller. Important: These joints must be prohibited to connect to any other power supplies. If they connect to other power supply, the inside circuit of this instrument may be damaged.

The output signal provides contact of a relay.

4.Electrical Performance of Interface

Output contact voltage: 24 V AC/DC Max. Current: 100mA

Terminal voltage when the input terminal connects to non-voltage control contact and has null connection: <10 V DC

VII.Operation Instructions and Procedures

1. Pre-set the test time

2. Preset the leak current alarm value

3. Adjust the output voltage

1.**Pre-set** the **test time**

（1）Preset conditions

The tester must be in the reset state, the tester can not be in the test status or the alarm status.

（2）Preset methods

①Increase

Press the UP button on the front panel, the time preset value will plus 1; Press the up

button continuously and hold the button, the time preset value will increase 1 continuously. If a certain value is added to, the time preset value will increase 10 until up to 999s.

②Decrease

Press the DOWN button on the front panel, the time preset value will minus 1; Press the down button continuously and hold the button, the time preset value will minus 1 continuously. If a certain value is decreased to, the time preset value will decrease 10 until up to 0.0s.

2.Preset the leak current alarm value

Preset conditions

Pop-up the AC / DC switch button in the front panel to make the tester be on the ACW test status. Note: If the tester is single ACW test, this step can be ignored.

（1）Preset methods

Press the test / preset buttons, the LED window show the current pre-set value. Adjust the potentiometer clockwise, the current pre-set value will be increased. Counterclockwise adjustment will reduce the pre-set leak current. If the preset current is up to the desired value, pop-up the test / preset button.

3.Adjust the output voltage

When the voltage regulator knob is at 0 position, even if user starts the tester from PLC, there is no high voltage output. Start the tester by PLC interface and adjust the output voltage knob clockwise slowly until the output voltage reaches to the required voltage.

VIII.Applying Illustration

1.Preparation of test

（1）Avoid electric shock

Please wear insulated gloves and stand on the insulation pad when operate the hipot tester. Note: the withstanding voltage of insulating gloves and insulated pad should be twice than the maximum output voltage of the tester.

（2）Set the alarm value of leak current and test time

Please refer to the seventh chapter.

（3）Connect the DUT(Device Under Test) to the tester

Please confirm the following before connection:

1, The tester is shut down or on the reset status;

2, The high voltage indicator is not light;

3, The voltage window show 0;

Connect the current measurement loop terminal firstly then connect DUT to the high voltage terminal.

8.2 Test mode

（1）Manual test

If the test time is set to 0, the tester will not judge the test time during testing. The tester is in a continuous test condition in the test.

After the "TEST" signal on PLC is enable, the test light will be lit; adjust the output voltage knob at a desired value, the tester will do the test continuously. During the test, if the test current is great than the preset value, the tester will alarm with sound and light. Set the “RESET”signal enable, the alarm will be stopped. Replace the DUT and continue to test. After testing, enable the “RESET” signal to stop the test.

（2）Automatic test

If the test time is not set to 0, the tester will enter into the automatic test. After the PLC “TEST” signal enabled, the test light will be lit; adjust the output voltage knob at a desired value, the tester will do the test. During the test, if the test current is great than the preset value, the tester will alarm with sound and light. Set the PLC “RESET” signal enabled, the alarm will be stopped. If the test time is return to 0 and the tester is not alarm, the test is passed and the DUT (Device Under Test)T is eligible.

Note: During DCW test, confirm the measurement circuit is without any electricity before replace another device.

IX.Precautions

9.2 Maintenance

9.2.1Warranty

1. Maintenance period： The instrument is warranted to be free from use for a period of 12 months from the date of shipment to the original end users in different sales

spots.

2. Accessories warranty period is six month.

9.2.2 Maintenance

Please bring forth the warranty card while maintaining. The company provides lift-long maintenance service to all the shipped instruments. In this period, consumer is responsible for the maintaining fee if the instrument is damaged by improper operation.

X.Packing list

No.	Item	Qty
1	Test line	1
2	20KV Withstand voltage tester adapter	1
3	Power cord	1