

twilight

INSTRUMENTOS DE MEDICIÓN INDUSTRIAL

**Equipo para pruebas
Dieléctricas en aceite
WH-HYYJ502A**

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Insulating Oil Tester Instruction Manual

1 FEATURES

- (1) AC220V \pm 10% power supply input
- (2) Output voltage: AC 0V~100KV
- (3) Rate of voltage rise: 0.5kv/s \pm 10%, 2kv/s \pm 5%, 3kv/s \pm 5%, 5kv/s \pm 5%
- (4) Max test times: 9
- (5) Init wait times: 0~999s
- (6) Stir time: 0~999s
- (7) Wait time: 0~999s
- (8) Measurement accuracy: \pm (1% of full scale + 2 digits) Resolution: 0.1KV
- (9) Temperature measurement:
 - Measurement range : 0°C to 70°C, or better
 - Temperature resolution : 1°C, or better
 - Operating temperature : up to 45°C
- (10) Storage: 100 groups
- (11) 7 inch colorful LCD with touch pad
- (12) Oil test vessel temperature measurement unit
- (13) Weight 38kg
- (14) Size: 460 mm*380mm*360mm

2 TEST OPERATION

2.1 Panel of HYYJ-502A

Figure 1 shows the panel of HYYJ-502A.



Figure 1 Panel of HYYJ-502A

Figure 2 shows the picture of HYYJ-502A



Figure 2 HYYJ-502A

2.2 TEST OPTIONS

The main function of the tester is as follow:

- 1) IEC60156/IS6792/BS5874/VDE0370-5
- 2) User-defined
- 3) 5 minute test
- 4) ASTM D877
- 5) ASTM D1816
- 6) JIS C 2101-99(S)
- 7) Proof 'A'
- 8) Proof 'B'

2.3 TEST PROCESS

If you want to make a test with HYYJ-502A you'd have to operate in accordance with the process as follows:

- 1 Tie the earth ground to the tester. If unreliable ground, the LCD will indicate Protection Enabled No Grounding connection or Insulation cover open
- 2 Put the magnet into the test vessel in the state of no power supply
- 3 the samples should be placed in the laboratory for a period of time without destruction of the

original package until the temperature of samples are close to the laboratory. Put sample into the test vessel and then shake vessel gently to clear it for 2 or 3 times.

4 In order to prevent bubble, sample should be put into the oil cup along the wall down slowly while there is no touch with the electrode, sample and internal of oil cup. Power supply must be cut off at the whole process.

5 In the state of no power supply, put the cover on the top of two electrode of insulation. And then cover the high voltage room door of the tester.

6 Turn on power supply, then you can see Figure 3 at the screen. It is the main menu of tester.

7 Click the button of the main menu you can select different item. The detail information of the test items are described on the follow chapters.

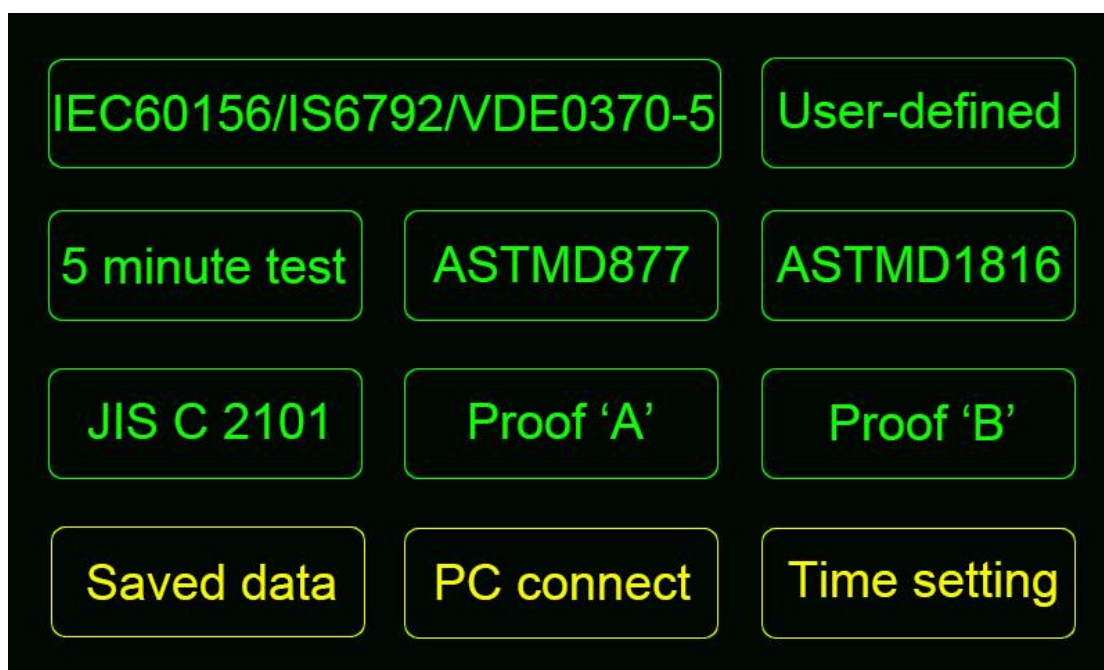


Figure 3 Main menu

2.4 Setting the parameters by virtual keypad

Some parameters of the test are adjustable. These parameters will be marked in yellow as figure 6 and figure 7. If the adjustable parameter is numeric, please click on the yellow area and then a virtual keypad will be showed on the screen. The value of the parameter can be set as follow procedure:

- 1) Click on the digital button the value showed on the screen will be changed.
- 2) If the parameter has reached the right value, click on the “Ent” button the virtual keypad will be hidden and the parameter will be saved in the tester. and 7. When you put the mouse on the If the adjustable parameter is a optional item, all these sub items will be showed when this parameter is clicked. You can select the right one from the items selection window and then the value of the parameters will be saved in the tester.

2.5 IEC156/IS6792/BS5874 TEST

The first item of the test selection menu is IEC156/IS6792/BS5874. When this item is selected, tester will be start in fixed parameters as Figure 4 The value of the parameters are “300s initial wait time”, “60s stir time” and “60s wait time”. Rate of HV rising is 2kv/s in this test option. The

test will be repeated for 6 times in one IEC156/IS6792/BS5874 test. The process and the test results are showed as Figure 5. The test results of IEC156/IS6792/BS5874 include breakdown voltages, average voltage of breakdown voltages, standard deviation and oil temperature at the time of the last breakdown. When the test is completed, you can print or save all the test results.



Figure 4 Parameters setting of IEC156/IS6792/BS5874

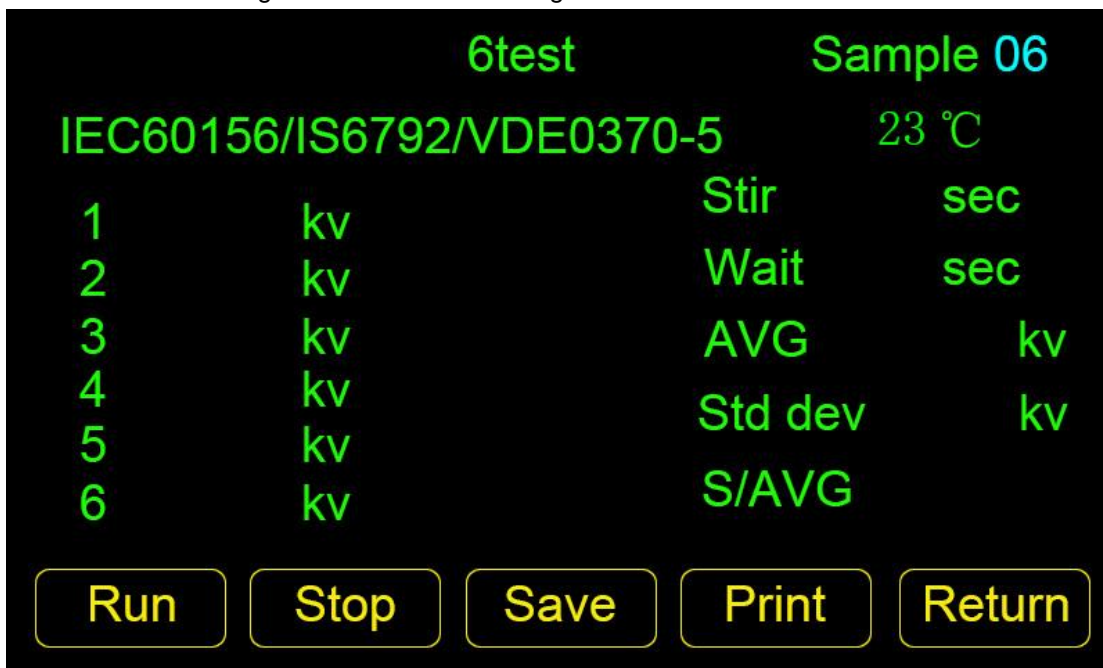


Figure 5 IEC156/IS6792/BS5874 operate menu

2.6 USER-DEFINED TEST

The second item of the test selection menu is User-defined. When this item is selected the initial wait time, stir time, wait time, times of test should be set prefer. When User-defined test is selected Figure 8 will be shown at screen.

- 1 The value of stir time could be adjusted in the range of 0~999s.
- 2 The value of wait time could be adjusted in the range of 0~999s.
- 3 The value of test times could be adjusted in the range of 0~9
- 4 After the completion of parameters settings, Figure 8 will be shown at the screen.
- 5 select button “Run”, test will be started.
- 6 The tester keeps waiting for the time of “Initial wait time” at first, and then the output voltage rise according to 2kV/s until sample breakdown.
- 7 The tester stirs the sample for the time of “stir time” and wait for a time of “wait time” after the first breakdown. And then output voltage rise again until breakdown.
- 8 when all tests are finished, breakdown voltages and average of breakdown voltages would be shown at screen. You can save or print the test results.

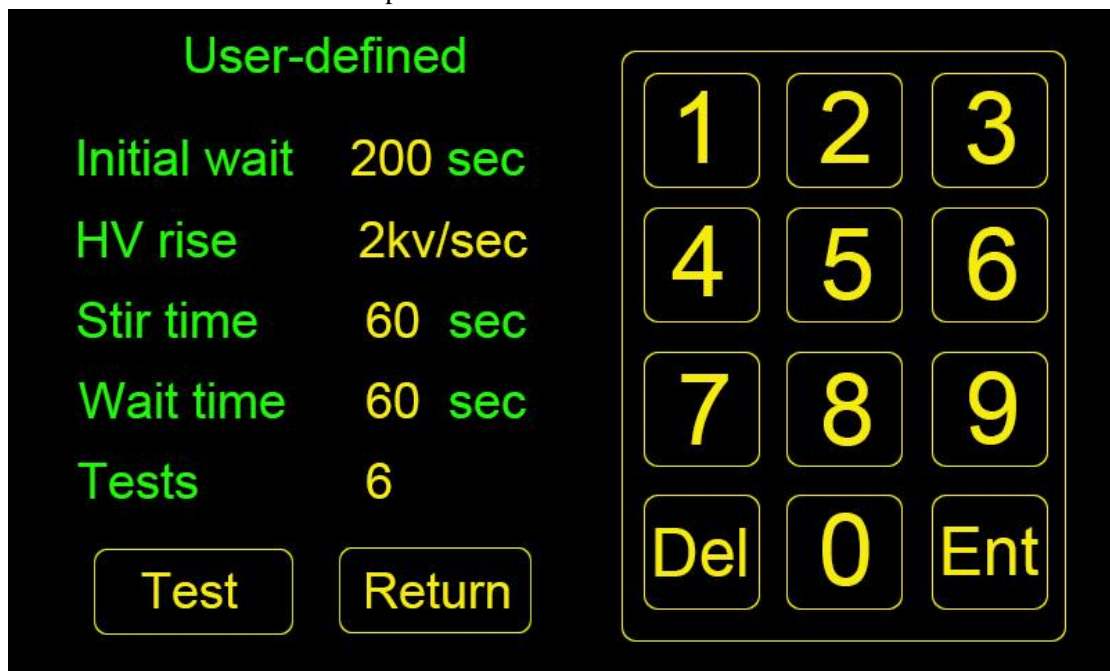


Figure 6 Parameters setting of User-defined



Figure 7 Speed select of User-defined

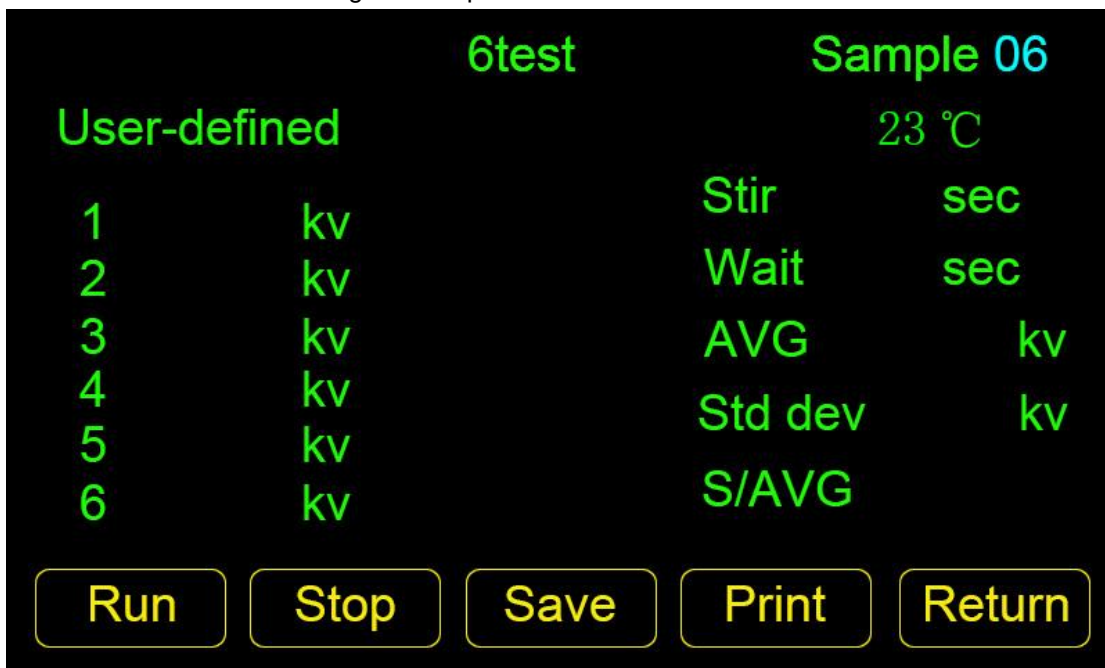


Figure 8 User-defined operate menu

2.7 5 MINUTE TEST

The third item of the test selection menu is 5 minute test. 5 minute test is a fast test model. When this item is selected tester will be start in fixed parameters as Figure 9 The value of the parameters are “60s initial time”, “”, “30 stir time” and “30s wait time”. Rate of HV rising is 2kv/s in this test option. The test will be repeated for 3 times in one 5 minute test. The process and the test results are similar to IEC156/IS6792/BS5874 .The test results of 5 minute test include breakdown voltages, average voltage of breakdown voltages, standard deviation and oil temperature at the time of the last breakdown. When the test is completed, you can print or save

all the test results.

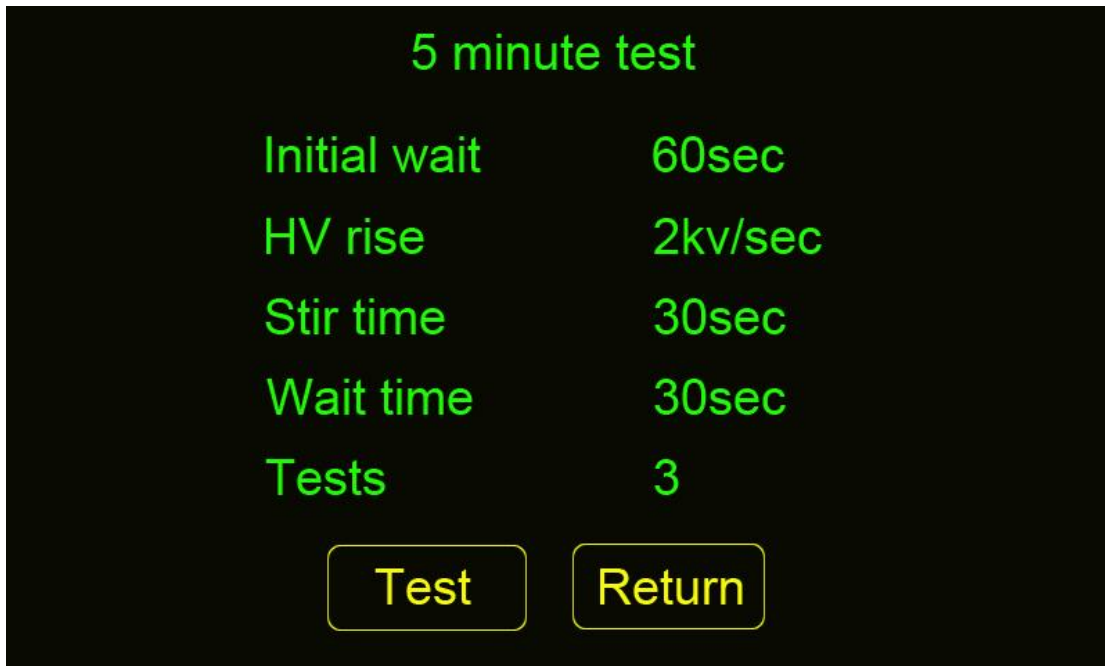


Figure 9 Parameters setting of 5 minute test

2.8 ASTM D877 TEST

The fourth item of the test selection menu is ASTM D877. When this item is selected, the tester will start in fixed parameters as shown in Figure 10. The values of the parameters are “140s initial time”, “00s stir time” and “60s wait time”. The rate of HV rising is 3kv/s in this test option. The test will be repeated for 5 times in one ASTM D877 test. The process and the test results are similar to IEC156/IS6792/BS5874. The test results of ASTM D877 include breakdown voltages, average voltage of breakdown voltages, standard deviation and oil temperature at the time of the last breakdown. When the test is completed, you can print or save all the test results.



Figure 10 Parameters setting of ASTMD877

2.9 ASTM D1816 TEST

The fifth item of the test selection menu is ASTM D1816. When this item is selected, tester will be start in fixed parameters as Figure 11 The value of the parameters are “180s initial time”, “”, “Continuous stir time” and “60s wait time”. Rate of HV rising is 0.5kv/s in this test option. The test will be repeated for 5 times in one ASTMD1816 test. The process and the test result are similar to IEC156/IS6792/BS5874 .The test results of ASTMD1816 include breakdown voltages, average voltage of breakdown voltages, standard deviation and oil temperature at the time of the last breakdown. When the test is completed, you can print or save all the test results.



Figure 11 Parameters setting of ASTMD1816

2.10 JIS C 2101-99(s)

The sixth item of the test selection menu is JIS C 2101-99(s). When this item is selected, tester will be start in fixed parameters as Figure 11 The value of the parameters are “120s initial time”, “”, “No stir time” and “120s wait time”. Rate of HV rising is 3kv/s in this test option. The test will be repeated for 5 times in one JIS C 2101-99(s) test. The test results of JIS C 2101-99(s) include breakdown voltages, average voltage of breakdown voltages, standard deviation and oil temperature at the time of the last breakdown. When the test is completed, you can print or save all the test results.

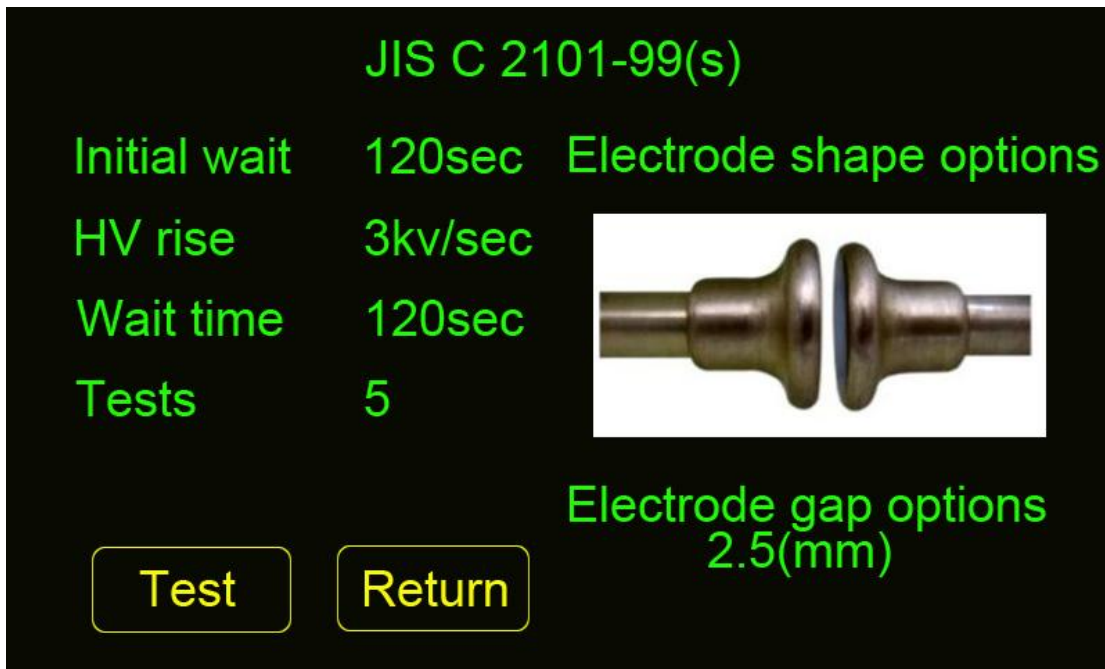


Figure 12 Parameters setting of manual

2.11 PROOF 'A' AND PROOF 'B' TEST

The process of proof test is different with other test models. Other test gets the breakdown voltage of sample. For the proof test., the main object is to find whether the sample will be breakdown at a set voltage and set time. When the proof test is selected Figure 13 will be shown at screen.



Figure 13 Proof A test set up

The parameters need to be adjust is set voltage and stay time. After the completion of parameters setting, Figure 14 will be shown at screen.



Figure 14 Proof A test operate menu

If button “Run” is selected, tester output a voltage which is close to set voltage. And then stay for “stay time”. If there is no breakdown in the whole process, Figure 15 will be shown at screen.



Figure 15 result of proof A test

If the sample was breakdown, the breakdown voltage will be record and test failed will be show. The difference of proof A and proof B is that proof A is end when test is passed. But for proof B test, Tester will rise the test voltage at the rate of 2kv/sec until breakdown and then shows the breakdown voltage at screen. .

2.12 Temperature Measurement

Temperature Sensor PT100 is installed at the bottom of the test vessel as figure 15a. The resistance value of PT100 is depends on the temperature of its surface which is keeping contact with the test

vessel when testing. The tester calculates the oil temperature in the oil test vessel according to the resistance value measured from PT100.

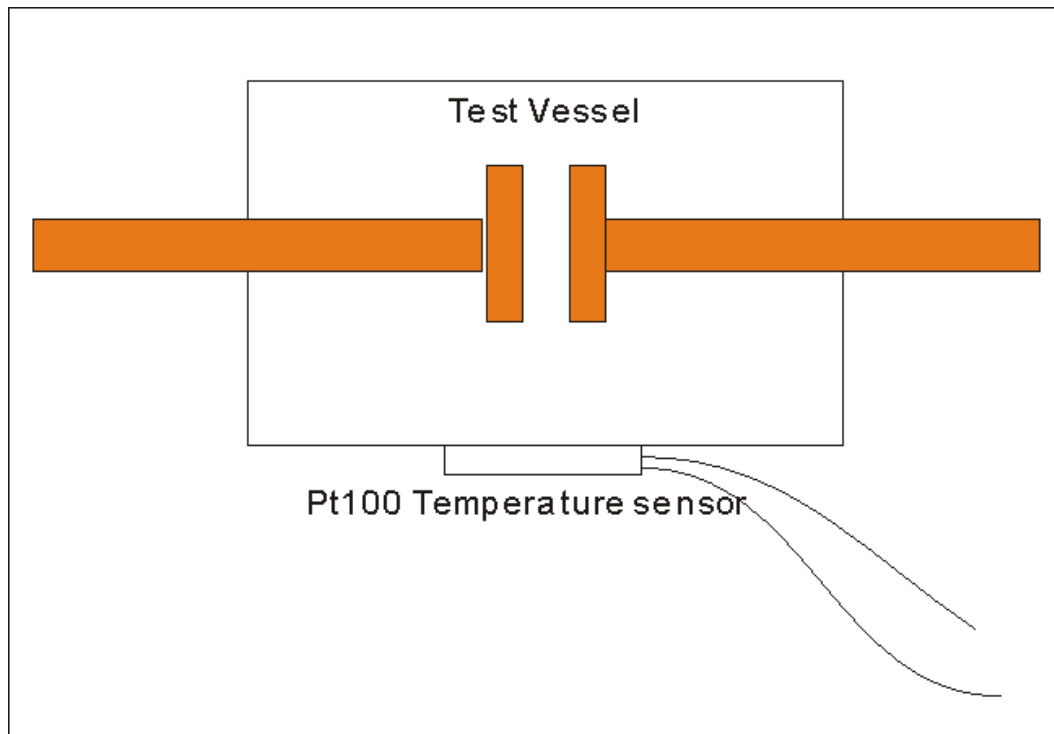


Figure 15a Temperature Measurement Unit

3 SAVED DATA

The ninth item of the main menu is Saved data. When this item is selected, Figure 16 will be shown at screen. You can click the "Enter" button to review the detail test result of the selected record.

If the button of "Delete all data" is clicked, all the test records saved in the tester will be cleared. The selected record index is changed by button "+" and button "-". If button "return" is clicked, the tester will come back to the main menu.

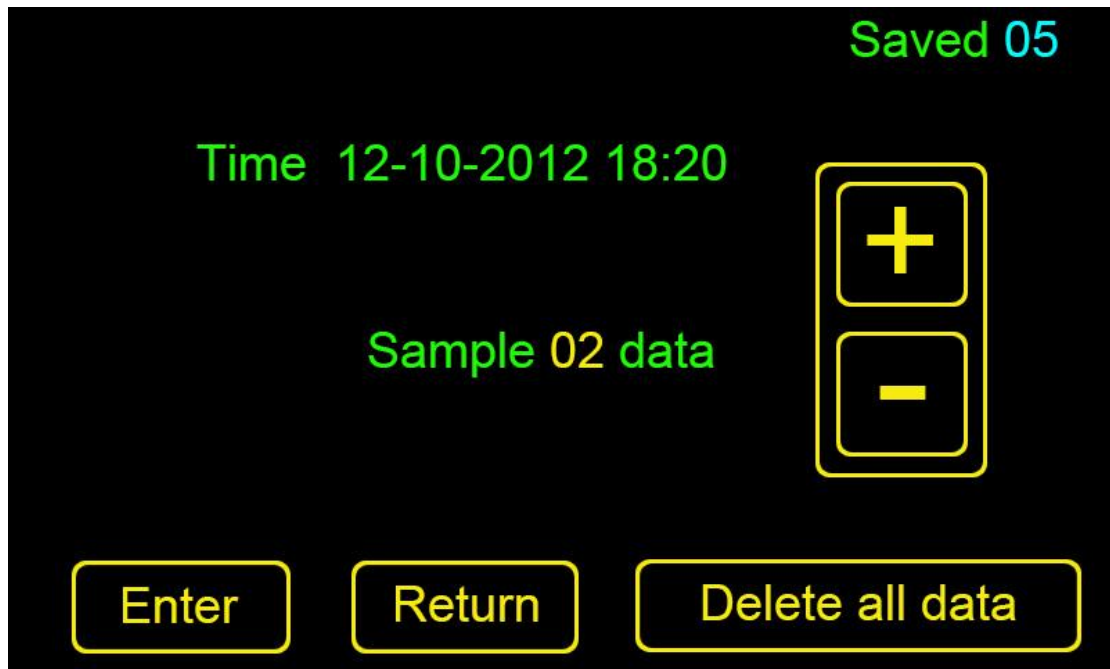


Figure 16 Saved data selection

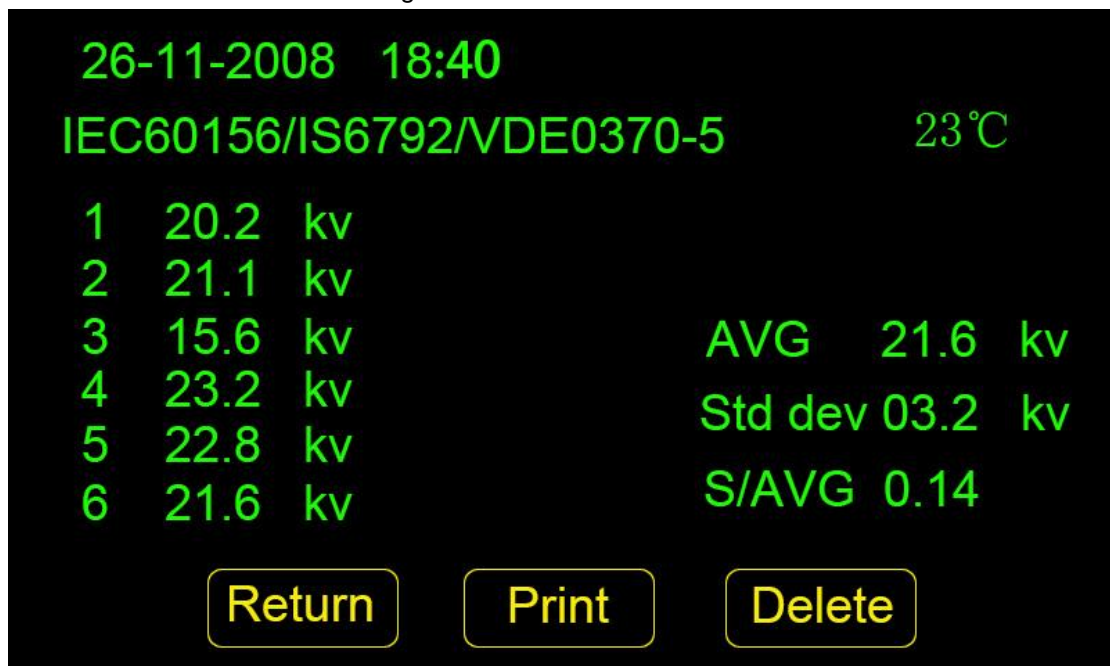


Figure 17 result of saved test

4 TIME AND DATE SETTING

The third item of the main menu is date time setting. Select this item. And then put down or rotate input switch the value of time and date will be changed.

5 PC Connection

All data saved in the tester could be uploaded to personal computer by an application. Figure 18 is the UI of the application for HYYJ-502A. Please start the application as follow:

1) Please find the data upload application in product disk as figure 18.



Figure 18 document in product disk

- 2) Please copy the file “Data upload software” to your computer
- 3) Click the application “Insulating oil tester.exe”, figure 19 would be shown. If the program can not run on your computer, Please find the “dotnetfx.exe” application in your disk files. Install this application and then try upload program again.
- 4) Set the tester in PC communication state and then click on the button upload. All data saved in tester would be display on the frame of the application. The procedure of data upload is as figure 20.

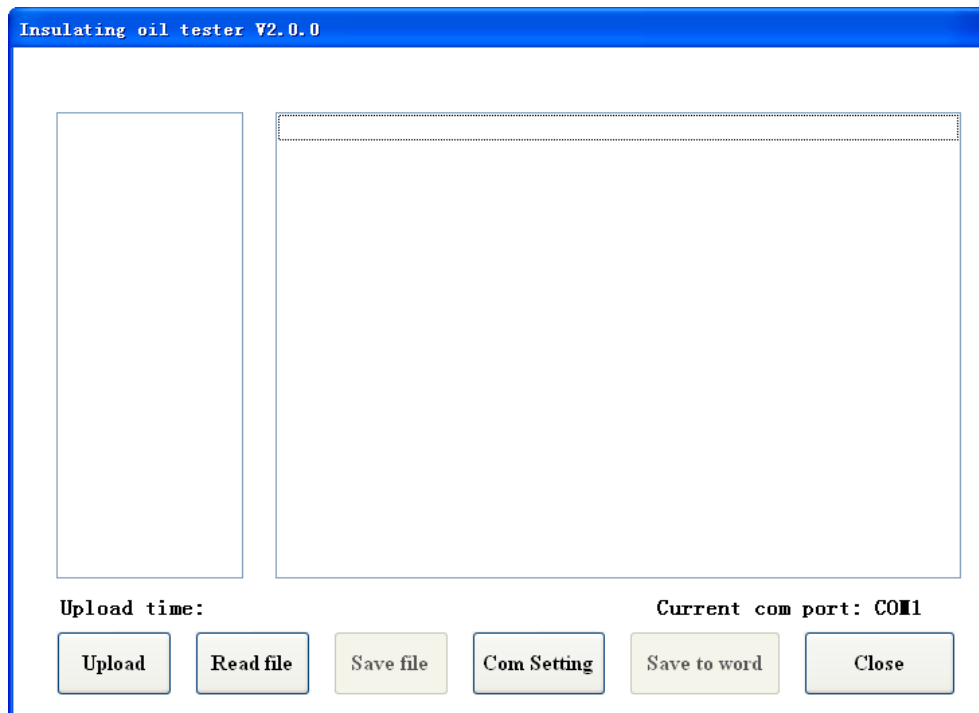


Figure 19 application of HYYJ-502A

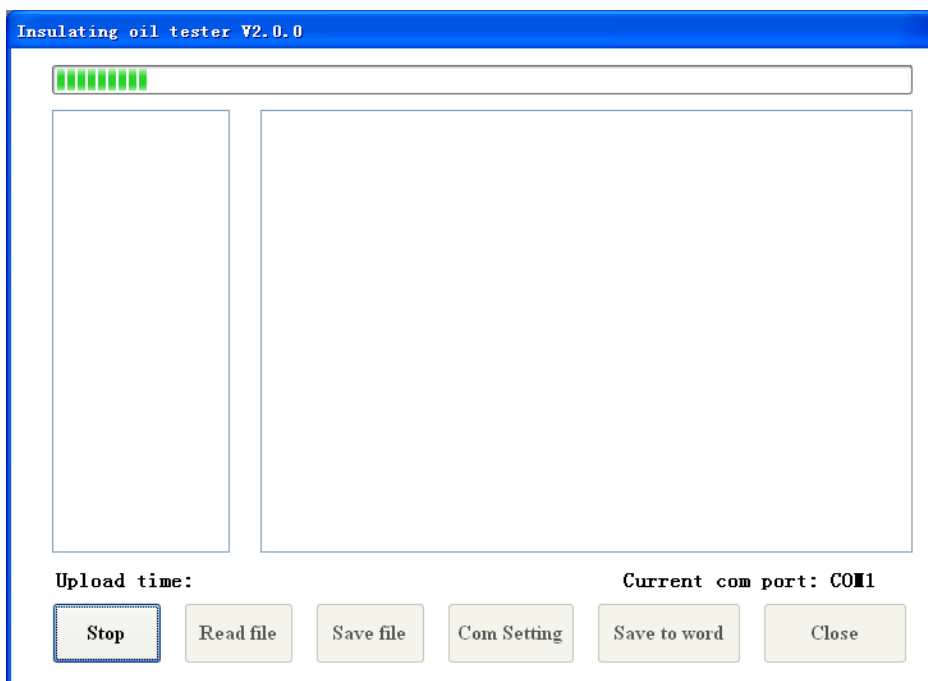


Figure 20 data upload

- 5) The application would ask you about data files saved name and path when the upload procedure is end. All the data saved in the tester would be shown as figure 21.
- 6) Please save all data in word file by button “save to word”. And the print all test results in Microsoft word.
- 7) The button “Com Setting” is response for communication port selection. Please choose the right RS-232 port before start the upload procedure.

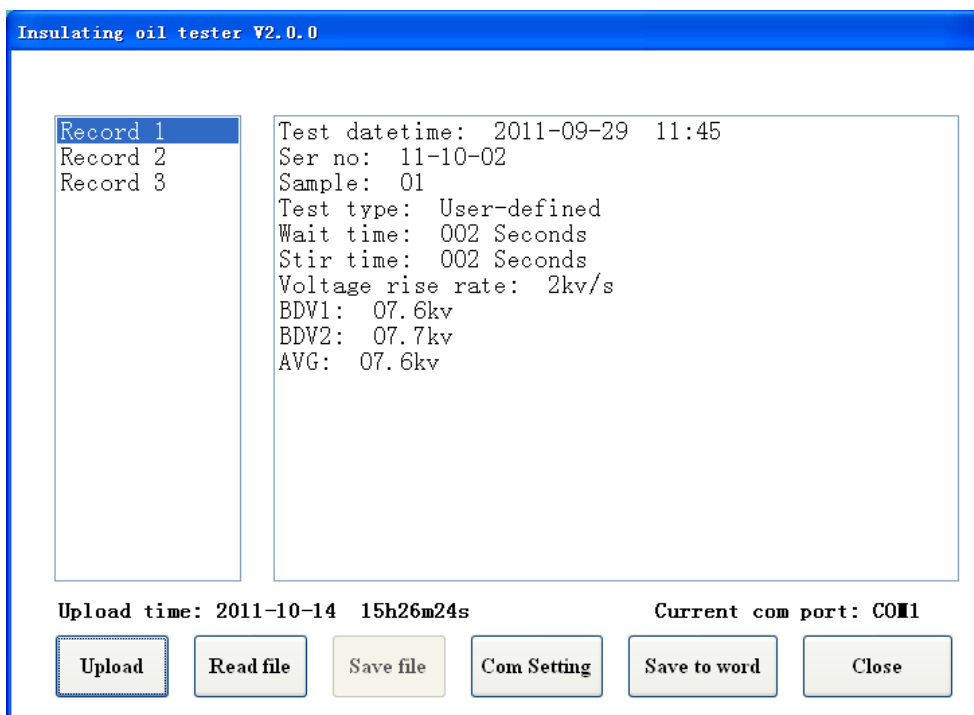


Figure 21 Saved data display

6 WARNINGS

1 If the tester shows the text “door open, please close the door”, it is mean that the test is paused. You would have to close the door for safe. Otherwise the tester will not work.

2 It is very dangerous that open the insulating door when the tester is working.

7 TROUBLE SHOOTING

Trouble	Possible cause	Remedy
There is no voltage show and no breakdown in test vessel when test is started	The low voltage winding of HV transformer circuit had been damaged for transportation or wrong application	<p>Open the box of tester. Check whether there is some unit had been damaged.</p> <p>Check the resistance value of green power resistance 30ohm/20W</p> <p>Replace the damaged unit with a new one</p>
There is a sound alarm and tester does not work when test is started	<ol style="list-style-type: none"> 1) The insulation door does not in right position 2) The insulation door position detect sensor had been damaged 3) The insulation door position detect circuit does not work 	<ol style="list-style-type: none"> 1) Please be sure that the insulation door in right position 2) Please replace the door position detect sensor with a new one 3) Please contact with tester manufacturer for help
There is no voltage show when test is started. But breakdown in test vessel is ok.	<ol style="list-style-type: none"> 1) The connection in measurement circuit had been disconnected for transportation 2) Some ICs in measurement circuit had been damaged 	<ol style="list-style-type: none"> 1) Open the box of tester. Check whether there are some lines in disconnection. 2) Check the ICs in main board whether there are some ICs had been damaged. Replace the bad ICs with a new one
The values of breakdown voltage are very small. While the voltage output unit is ok when there is no test vessel between electrodes	The contact between electrodes and test vessel is not good	Please relocate the test vessel between electrodes
The test value is not exact	The error of measurement becomes more and more for long time work	Please contact with manufacturer to calibrate the tester again.

8 ACCESSORIES LIST

Table 1 Standard configuration for HYYJ502A

Name	Quantity	Memo
Insulating oil tester	1unit	
Power line	1unit	
Grounding line	1unit	
Test vessel	1unit	
Electrodes Mushroom, Flat and Spherical type	3pair	
Feeler gauge 1mm,2mm,2.5mm,4mm	4units	
Insulation cover	1pair	
Stirrer	2unit	
Insulation glue	1unit	
High voltage column	1pair	
USB-RS232 connection line	1unit	
Thermal print paper	2units	
Fuse(5A/3A)	2units/2units	
Instruction manual	1unit	
disk	1unit	
Inspection report	1unit	
Pass certificate	1unit	



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