

Voltage Transformer Field Tester

GWP-20



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CHAPTER 1 FOREWORD

»» **GWP20** Voltage transformer field tester is the most suitable for electromagnetic voltage transformer error test in the field of automatic intelligent instrument, using a new embedded operating system, rich functions, easy to use. The instrument is equipped with color touch type LCD screen, the error of each point can be displayed on the same screen, all operations can be easily completed by clicking the screen menu. Users no longer need to configure bulky resonant booster, standard voltage transformer, load box and voltage regulator (or automatic detection station). A single instrument can quickly measure the electromagnetic voltage transformer of 6kV and above. The test time of the whole process (including rated and lower limit of all measuring points) shall not exceed 6 minutes (excluding wiring time). High stability of the instrument, the system can run stably for a long time, performance does not change with time.

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CHAPTER 2 INDEX PARAMETERS

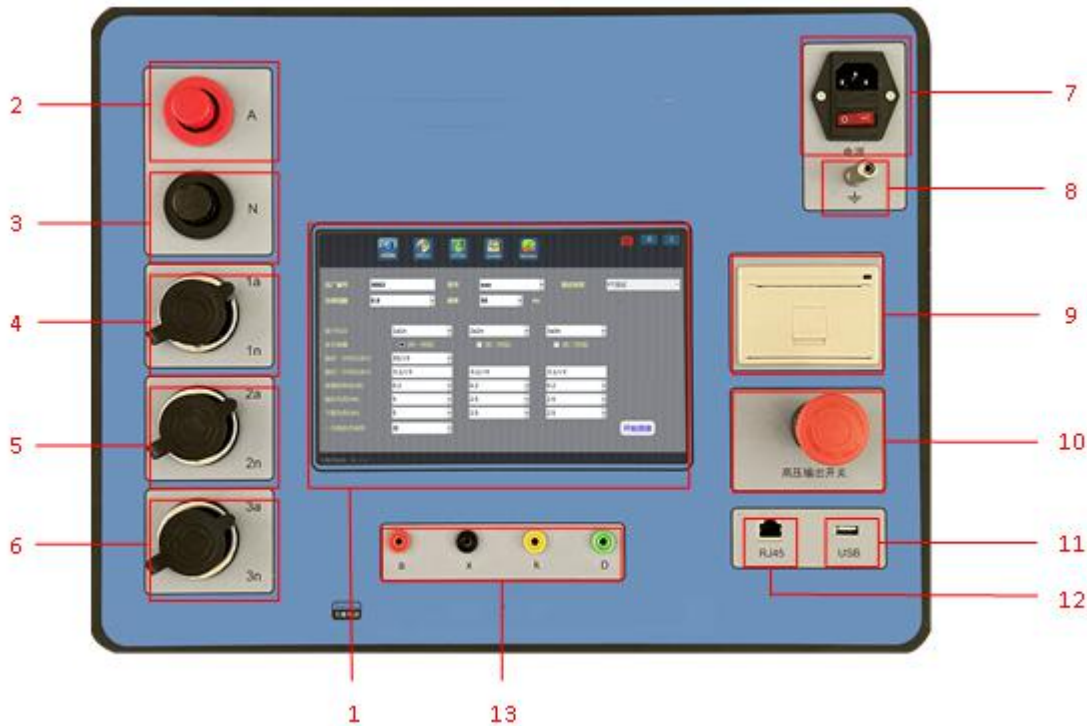
- Bill error test range: 6KV/100V, 6KV/ $\sqrt{3}$, 20kV/100V, 20kV/ $\sqrt{3}$, 35kV/100V, 35kV/ $\sqrt{3}$, 66kV/ $\sqrt{3}$, 110kV/ $\sqrt{3}$, 220kV/ $\sqrt{3}$
- Queue Supports testing up to three groups of secondary windings, namely 1A1n, 2A2n, and 3A3n, each with a maximum secondary load of 200VA.
- Can store more than 1000 sets of test data.
- Costing the device weighs about 22kg.
- Lent accuracy level: 0.05

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CHAPTER 3 FUNCTION INTRODUCTION

一、Panel description



1. Large screen with backlight touch screen LCD: resolution 1024×600 points, all measurement data and relevant operation tips are displayed in Chinese.

2. Transformer: the internal output high voltage end of primary A terminal of the instrument is connected to the primary A terminal of the transformer. The short-term maximum output voltage is 2kV during the working process, which is led out by the special high voltage insulation wire.

3. Transformer: the primary N terminal is connected to the primary N terminal of the transformer, led out by the special high voltage insulation wire, the voltage transformer must be reliably grounded before measurement!

4. PT secondary winding: the 1A1N instrument adopts four-wire connection, the yellow terminal of the test line is connected to the 1A end of the secondary transformer, and the black terminal of the test line is connected to the 1N end of the secondary transformer.



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5. PT secondary winding: the green terminal of the 2A2N test line is connected to the 2A end of the secondary transformer, and the black terminal of the test line is connected to the 2N end of the secondary transformer.
 6. PT secondary winding: the red terminal of the 3A3N test line is connected to the 3A end of the secondary transformer, and the black terminal of the test line is connected to the 3N end of the secondary transformer.
 7. Ac power socket with switch: AC 220V \pm 10%, frequency 50 \pm 0.5Hz.
 8. Instrument grounding terminal: Before testing, ensure that the terminal is reliably connected to the ground. Must be grounded!
 9. Printer: Used to print error data
 11. High voltage output switch: used to cut off the high voltage output, in the test process should be switched on.
 11. USB interface: the data stored in the instrument can be downloaded to the USB disk, and the data in the USB disk can be imported into the instrument.
 12. RJ45 network port: upgrade interface of the instrument software.
 13. Traditional test terminals: TERMINALS A and X are the working voltage input terminals, and terminals K and D are the differential voltage or differential current input terminals.

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CHAPTER 4 USE METHOD

一、 use preparation

- Measuring instruments automatically has to be live, so operators have to comply with safety regulations.
- Check the insulation of each measuring line using a multimeter before connecting to a network, to prevent accidents to the grid and equipment caused by a short circuit on the measuring line.
- A connection is made by connecting a terminal on the instrument panel first and then the line to be tested.
- Do not touch the high voltage TERMINALS A and N during the test.
- Automatically press the high voltage output switch to shut down the high voltage output if an exception is found during a test.
- The grounding terminal must be grounded reliably.
- Anyway, after a beta test, make sure you shut down the power line anyway!
- To restart the system by switching off the power for three seconds, restart the system again to ensure that all hardware circuits are powered down.

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二、 Operation method

After startup, the instrument interface is as follows:

Click "Error Measurement" to enter the measurement interface:



1、 Error measurement interface

1) Factory number

Click here, a soft keyboard pops up, you can modify the factory number of this data.

2) model

All models stored in the system are displayed in the drop-down list. In System Settings, you can add, modify, or delete models.

3) Test type

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PT by default.

4) Power factor

All power factors stored in the system are displayed in the drop-down list box. You can add, modify, or delete a power factor in System Settings.

5) frequency

The default frequency 50 hz.

6) Terminal mark

Click here to display the name of the test winding. If blank is selected, all information of the winding end will be screened out.

7) Whether to measure

Click here to select whether to test the winding error data.

8) Rated primary voltage

All the rated primary voltages stored in the system are displayed in the drop-down list box. You can add, modify, or delete the rated primary voltages in System Settings.

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9) Rated secondary voltage

Automatically generated according to the rated primary voltage, no need to fill.

10) Accuracy level

All accuracy levels stored in the system are displayed in the drop-down list. You can add, modify, or delete accuracy levels in System Settings.

11) Rated load

All the rated loads stored in the system are displayed in the drop-down list. You can add, modify, or delete the rated loads in System Settings.

12) Lower limit load

The lower limit of the internal storage capacity is displayed in the drop-down list box. You can add, modify, or delete the lower limit in System Settings.

13) Whether the primary terminal is connected

You can select Yes or No. If yes is selected, the primary terminal is connected throughout the test without secondary cables. When selecting "No" (when the transformer ratio under test is greater than or equal to 35/0.1kV, the default value is "No"), click "Start Measurement", the following picture will pop up on the interface

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to confirm whether the primary terminal is disconnected. If the primary terminal is disconnected, click "Yes"; otherwise, click "No".

15) Start measuring

Set the parameters of the transformer, select the serial number of the secondary winding to test the error, click start to test the error, and the instrument will check the wiring first.



If "Yes" is selected because the primary terminal is not disconnected due to misoperation, the device will automatically check whether the primary terminal is connected before measurement. At this time, the following figure will pop up indicating that the primary terminal is not disconnected, and then disconnect the primary terminal according to the prompt.

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出厂编号: 0002 型号: aaa 测试类型: PT测试

功率因数: 0.8 频率: 50 Hz

端子标志: 1a1n

是否测量: (第一绕组)

额定一次电压(kV): 35/√3

额定二次电压(kV): 0.1/√3

准确度等级(级): 0.2 0.2 0.2

额定负荷(VA): 5 2.5 2.5

下限负荷(VA): 5 2.5 2.5

一次端是否接线: 否

提示
请先按下高压输出开关，再断开一次端接线！断开接线后再接通高压开关！

开始测量

主程序版本: V1.1.2

2-2

绕组	负荷(VA)	误差	80%	100%	120%
1a1n	1a1n:25 2a2n:30	比差(%)			
		角差(°)			
	1a1n:2.5 2a2n:0	比差(%)			
		角差(°)			

打印

复位

返回

导纳

测试进度: 1% 测试状态: 检查接线.

主程序版本: V20.1.2 2020-01-03 15:32:52

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The screenshot shows the software interface with a table of test parameters and a progress bar at 2%.

绕组	负荷(VA)	误差	80%	100%	120%
1a1n	1a1n:25 2a2n:30	比差(%)			
		角差(°)			
	1a1n:2.5 2a2n:0	比差(%)			
		角差(°)			

测试进度: 2% 测试状态: 正在进行导纳测试...

主程序版本: V20.1.2 2020-01-03 15:32:58

After the wiring check is correct, enter the admittance test. When the progress bar reaches 17%, the admittance test is over.

The screenshot shows a completion message dialog box over the software interface. The progress bar is now at 11%.

提示

导纳测试结束, 下面进行误差测试。请先按下高压输出开关,再给一次端接线! 接线后接通高压输出开关,再点击继续!

继续

测试进度: 11% 测试状态: 导纳测试完成, 正在额定负荷准备...

主程序版本: V20.1.2 2020-01-03 15:34:57

After the admittance test is completed, the instrument will enter the load

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preparation state. After the load preparation is completed, the polarity check and actual change ratio test will be carried out on the PT under test. If the polarity is minus, the error test will continue; if the polarity is plus, a prompt box will pop up, prompting to check the wiring.



After the test is completed, the test data will be displayed on the interface, as shown in the figure below. You can click "Print" button to print the current error data.



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2、 Data interface

You can export or import data from a database.



3、 System Setting interface

1) The measured parameters



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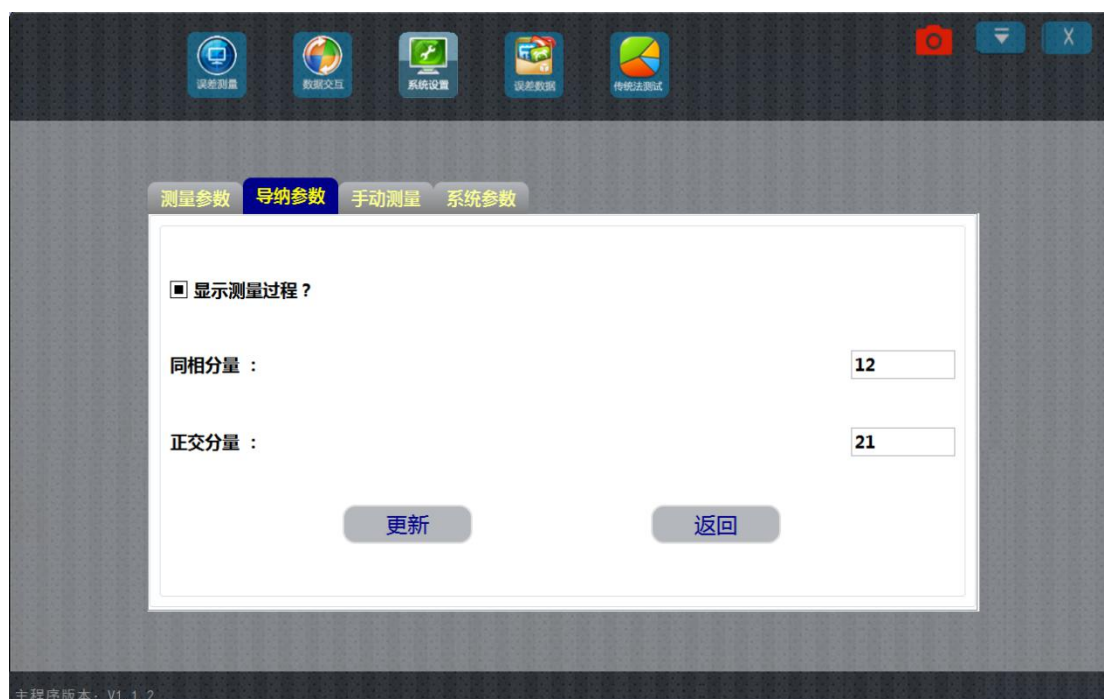
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Click the drop-down menu to increase, modify and delete the seven single items of accuracy level, model, primary voltage, secondary voltage, power factor, frequency and load in the system.

2) Admittance parameter

Click Admittance Parameters and enter the password (88888888). This is the internal parameter display setting of the instrument system, which will not be displayed by default after startup.



If the measurement results have errors, systematic error correction can be carried out. The "in-phase component" can correct the "ratio difference" of the test results, and the "orthogonal component" can correct the "Angle difference" of the test results. If "in phase component" input 0.2, "orthogonal component" input 0.5, and then click "Update", the test results will add 0.2% to the ratio difference between the

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rated load and the lower limit load, and add 0.5 points to the Angle difference. If the input is negative, is minus.

3) Manual measurement and system parameters are used for factory debugging.

4、 Error data interface

The saved error data can be queried, deleted and printed:

The screenshot shows a software interface with several input fields for parameters and a table of error data. The parameters include factory number (0002), model (aaa), capacitance (0.02), frequency (50), and test date (2014-08-25 13:24:27). The table displays error data for two winding groups (1a1n and 2a2n) at different load levels (100VA and 150VA) and accuracy grades (0.2).

绕组	准确度等级	负荷(VA)	误差	80%	100%	115%
1a1n	0.2	100	比差(%)	0.006	0.006	0.006
			角差(')	10.79	10.77	10.77
	2.5	比差(%)	-0.191	-0.191	-0.191	
		角差(')	9.25	9.27	9.27	
2a2n	0.2	150	比差(%)	-0.093	-0.093	-0.093
			角差(')	9.10	9.11	9.11
	2.5	比差(%)	-0.093	-0.093	-0.093	
		角差(')	9.10	9.11	9.11	

5、 The traditional method tests the interface

The GWP error test line cannot be connected to the traditional method, and the same is true for the traditional method.

In the traditional test method, a and X terminals on the panel are connected with the working voltage, K and D are connected with the differential voltage, and the

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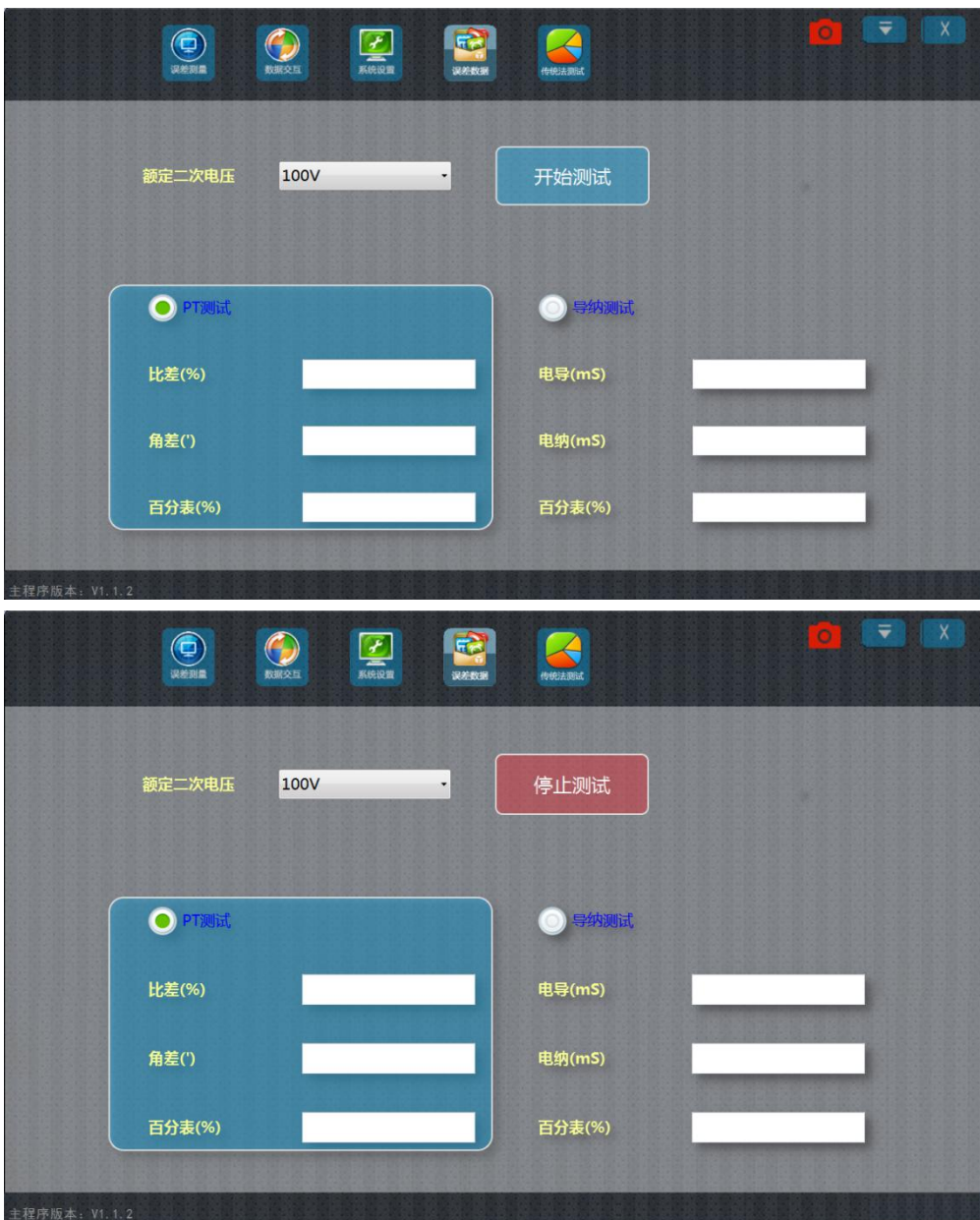
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grounding terminal should be reliably grounded.

The traditional test method has two modes: GWP test and admittance test. The rated secondary voltage can be selected as 100V, 100/ $\sqrt{3}$ V or 100/3V. Select the mode to be tested and click Start test to enter the test mode. Click Stop Test to close the test mode.



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CHAPTER 5 INSTRUMENT MAINTENANCE

一、 Maintenance

The instrument should be kept in a clean and dry environment, with the temperature between -10°C and 40°C and the humidity less than 80%. Do not expose to the sun.

二、 The warranty issues

Since the date of sale, the instrument is guaranteed for two years, lifetime maintenance.

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