

ZC-200 2500kVA-10kV-35kV

Transformer Test Control Desk

User Manual



Dear Customers,

Thank you for purchasing our ZC-200 Transformer Test Control Desk. Before you use the product for the first time, please carefully read this Manual which can help you skillfully use the Tester.



Our aim is to improve our products continuously, so that the product you use may be a little bit different from the Manual. In case of any changes, we will inform you in the attached sheets! Thanks for your understanding. If anything is unclear, please contact the After-Sale Service Department in our company, and we will certainly meet your requirements.



Since the I/O terminal, testing column and *etc.* may carry voltage, electric spark may be produced when you insert and unplug the test lead, power socket and *etc.*. Please do be careful of electric shock and avoid hazards. Pay attention to your personal safety!

Prudent Warranty

For the products manufactured by our Company, if the defects appear within 3 months from the date of delivery, we can provide the replacement; if the defects appear within one year from the date of delivery, we can provide free services and repairs; if the defects appear more than one year after delivery, we can provide life-long paid maintenance services.

□ Safety Requirements

Please carefully read the following safety precautions so as to avoid personal injury and prevent the product or any other products connected thereto from being damaged. In order to avoid the possible dangers, the product can only operate within a specified range.

Only the qualified technicians can implement the maintenance.

— Prevent Fire or Personal Injury

Use appropriate power cables. Only the dedicated power cables which conform to the specifications of the product can be used.

Correct connection and disconnection. When the test lead is connected to the charged terminal, please don't connect or disconnect the test lead at will.

Earth the product. In addition to be earthed using the power line, the earthing rod on the shell of this product must also be earthed. In order to prevent electric shock, the earthing conductor must be connected to the ground. Before the connection to the input or output terminal of the product, please make sure that the product has been properly earthed.

Pay attention to the rated values of all terminals. In order to prevent fire or electric shock, please pay attention to all the rated values and marks of the product. Before the connection, please read this Manual so as to gain more insight into the information on rated values.

Never operate the product without an instrument cover. If the cover or panel has been removed, never operate the product.

Use appropriate fuses. Use the fuses of the type and rated value specified for the product.

Avoid touching the exposed circuits or charged metal. When the product is electrified, never touch the exposed contacts or parts.

In case of suspected failure, never operate the product. If you suspect the product is damaged, please contact the maintenance personnel for examination and never operate the product.

Never operate the product in a humid environment.

Never operate the product in an explosive environment.

Keep the surface of the product clean and dry.

— Safety Terminology

Warning: *Warning messages indicate the conditions or practices that may cause loss of life or personal injury.*

Caution: *Caution messages indicate the conditions or practices that may cause the damages to the product or other properties.*

CONTENT

I. Overview6

II. Test item6

III. Technical parameters7

IV. Description of the panel on Transformer Test Control Desk7

V. Characteristics test8

VI. Voltage-withstand test9

I. Overview

Comprehensive test stand conforms to the related national standards such as GB/T4776, GB/T5169 and GB/4285-1993.

The test stand is mainly used to test no-load and load characteristics of power transformer and distribution transformer. The measuring part of the device is controlled by a high-grade single chip microcomputer, with the digital display, no-load and short circuit and other test data synchronously sampled by the single chip microcomputer to avoid separately reading the voltmeter, ammeter and power meter in the traditional test methods and causing error due to manual computation.

II. Test item

Effective value of three-phase voltage

Effective value of three-phase current

Three-phase active loss

Three-phase reactive loss

Three-phase average voltage

Three-phase mean voltage value

Three-phase mean current value

Total power

No-load current percentage

Impedance voltage percentage

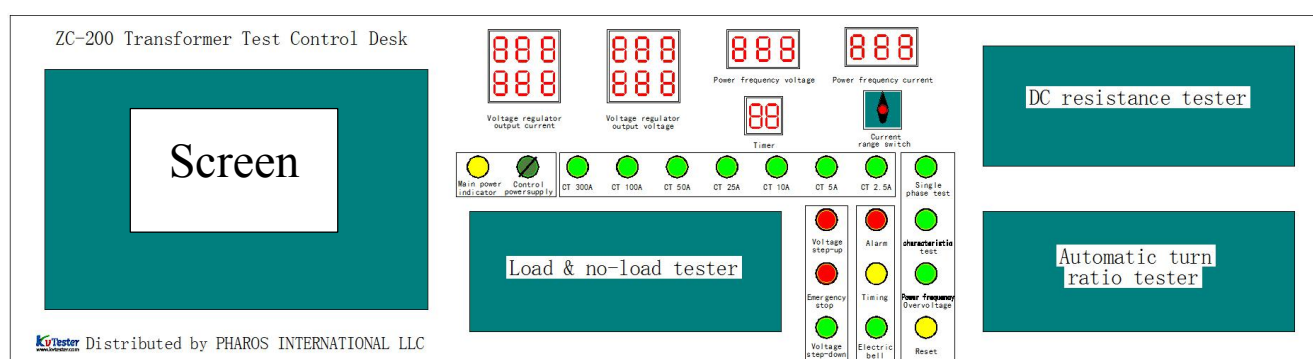
Frequency

Power factor

III. Technical parameters

Item	Measuring scope	Relative error
Voltage	0.1~650V	$\pm(0.2\% \text{ reading} + 0.1\% \text{ range})$
Current	0.1~300A	$\pm(0.2\% \text{ reading} + 0.1\% \text{ range})$
Power	$U \cdot I$	$\pm(0.2\% \text{ reading} + 0.1\% \text{ range})$
Power factor	0.1~0.9999	$\pm 3\%$
Power supply	AC380V+10% 50HZ+2%	
Usage environment	Working temperature scope is 0~40 °C and relative humidity is 30%~90%	

IV. Description of the panel on Transformer Test Control Desk



Description of the Buttons or Switch:

Current range switch: Used for No-load and Load testing, adjusting according to the parameters of the tested object.

Voltage step-up: This button will be used for No-load, Load and withstand voltage testing, for raising voltage step by step.

Emergency stop: Use this button in case of emergency to stop testing.

Voltage set-down: This button will be used for No-load, Load and withstand voltage testing, for decreasing voltage step by step.

Timing: When need to do the power frequency withstand voltage test, click this button to start timing.

Electric bell: After power on, click this button to prompt the surrounding personnel that the system is under working.

Single phase test: When the tested transformer is a **single-phase** transformer, click this button before starting the No-load and Load test.

Characteristic Test: When the tested transformer is a **three-phase** transformer, click this button before starting the No-load and Load test.

Power frequency Over voltage: When need to do the power frequency withstand voltage test, click this button before starting the test.

Reset: Press this button when each time testing is completed.

V. Characteristics test

Operation procedure for No load test:

1. Check whether the wiring of instruments and equipment is correct;
2. Connect the terminal port of testing cable from the Auxiliary Control Cabinet to the tested object to the low-voltage side a, b and c, and the high-voltage side is suspended;
3. Turn on the Power lock and the main power indicator will be on;
4. Turn on Tester of ZC-201, turn on the computer, enter the test software, and input the parameters of the tested transformer;
5. Select the current gear, voltage gear and test wiring mode in the test software, and click to start the test;
6. Press the Characteristic test button and the indicator light will be on. Adjust the Current range switch and the current gear indicator will be on;
7. Press the Voltage step-up button to the target voltage. Click the lock point key on the Tester;
8. View or print test data.
9. Press the Voltage step-down switch to 0V.
10. Press the Reset button, and adjust the Current range switch to 0 gear (Reset gear);
11. End of test.

Operation procedure for Load test:

1. Check whether the wiring of instruments and equipment is correct;
2. Connect the terminal port of testing cable from the Auxiliary Control Cabinet to the tested object

to the high-voltage side A, B and C, and short circuit the low-voltage side;

3. Turn on the Power lock and the main power indicator will be on;
4. Turn on ZC-201, turn on the computer, enter the test software, and input the parameters of the tested transformer;
5. Select the current gear, voltage gear and test wiring mode in the test software, and click to start the test;
6. Click the Characteristic test button and the indicator light will be on. Adjust the Current range switch and the current gear indicator will be on.
7. Press the Voltage step-up button to the target voltage. Click the lock point key on the Tester;
9. Press the Voltage step-down switch to 0V.
10. Press the Reset button, and adjust the Current range switch to 0 gear (Reset gear);
11. End of test.

VI. Voltage-withstand test

Operation procedure for Withstand voltage test:

1. Check whether the wiring of instruments and equipment is correct;
2. First connect the test cables from Power frequency output terminal on the Auxiliary Control Cabinet to the input terminal of the Hipot testing transformer; connect the signal cables from terminal on the secondary side of the Auxiliary Control Cabinet to the instrument terminal on the Hipot testing transformer; and connect the grounding cable for the Hipot testing transformer. The high-voltage output terminal of the Hipot testing transformer should be connected to the high-voltage side of the tested object (short circuit at the high-voltage side), and the low-voltage side is short circuited to the shell grounding. Keep a safe distance of 1m in the testing from personnel.
3. Press the Power frequency over voltage button;
4. Press the Voltage step-up button to the target voltage;
5. Press the Timing button to start timing (60 seconds);
6. When the timing is over, the alarm light rings, Press the Voltage step-down switch to 0V, and Press the Timing button to turn off the alarm light;
7. Press the Reset button to finish the test.

VII. Software Operation Instruction

Step 1: Click the Desktop shortcut of “ZZCekong” or directly click the below file in the folder of “ZC200 Transformer Tester Software-en” to open the Transformer Testing Controlling Software. Then you get the main interface of the software as show in Figure 2.



Figure 1 Start icon



Figure 2 Main Interface of the software

Step 2: Click the button of “Begin Test”, then you get the Figure 3 as below. Please input the Report number and other parameters, then click “OK” for starting testing.

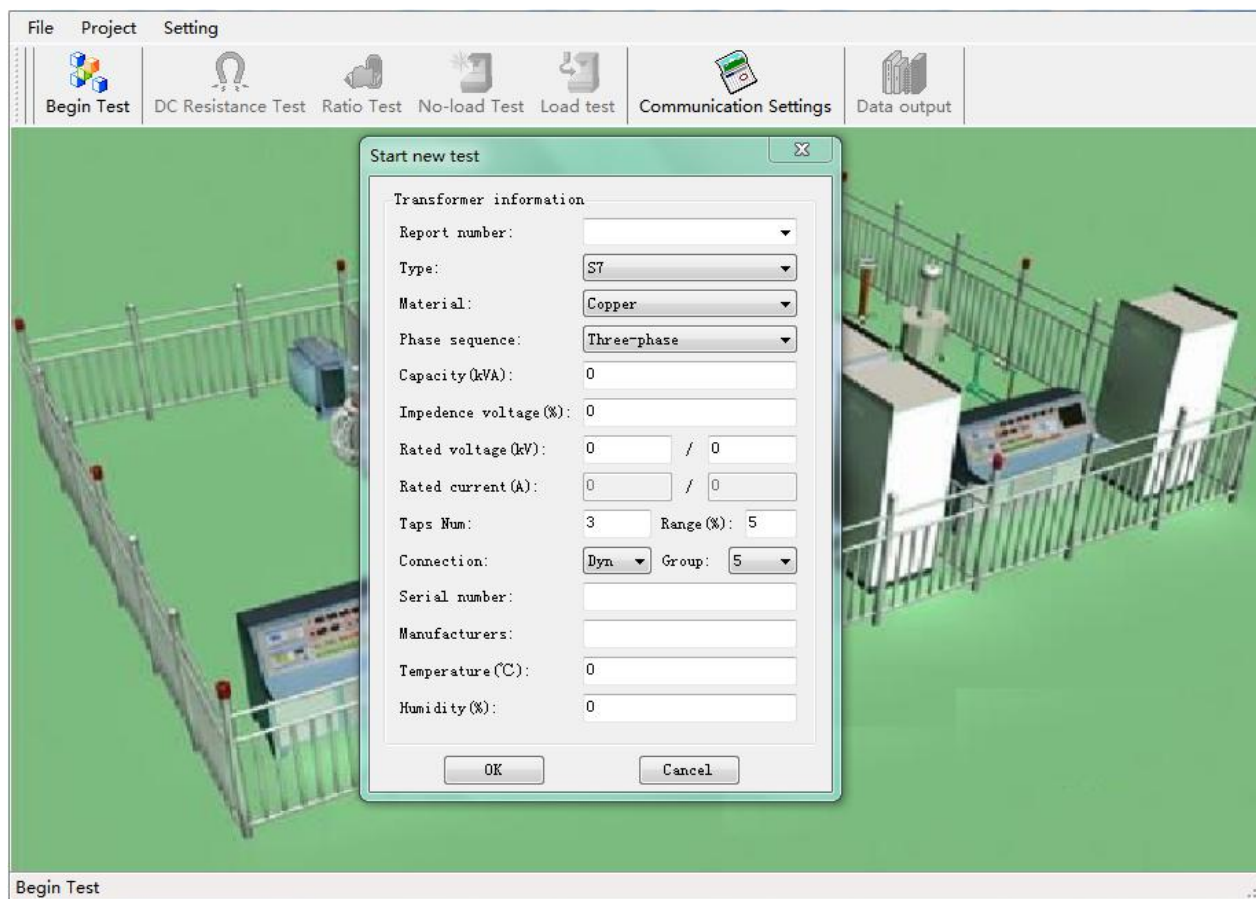


Figure 3 Begin Test

Step 3: Choose the type of test you need to execute, such as “DC Resistance Test”, “Ratio Test”, “No-Load Test” and “Load Test”, and set the parameters. Before starting each test, please make sure the cable connection is correct.

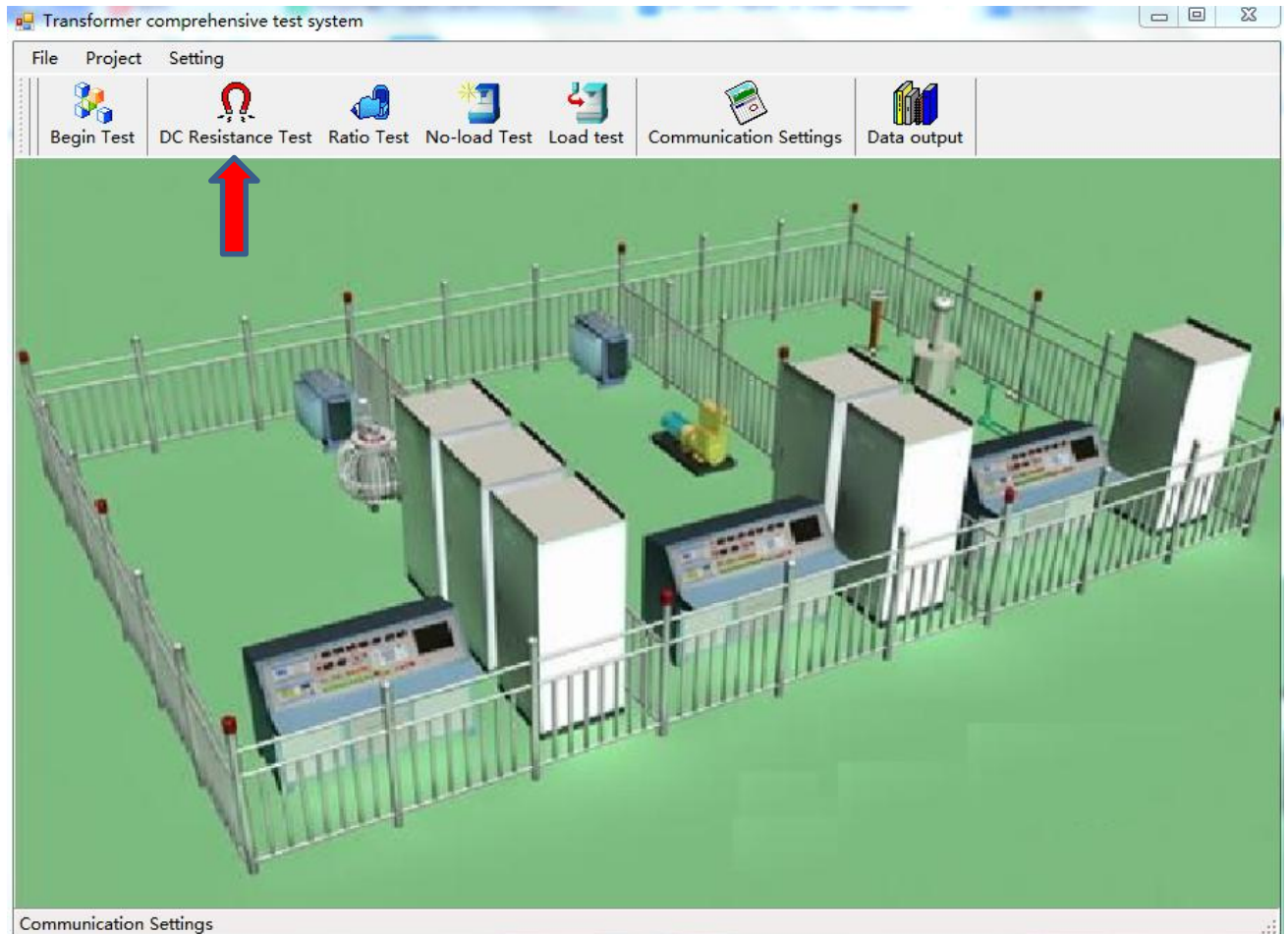


Figure 4 Choose testing function

Step 4: When finished the testing, and you need to get the data, please click “Data output”. You can download the testing data.

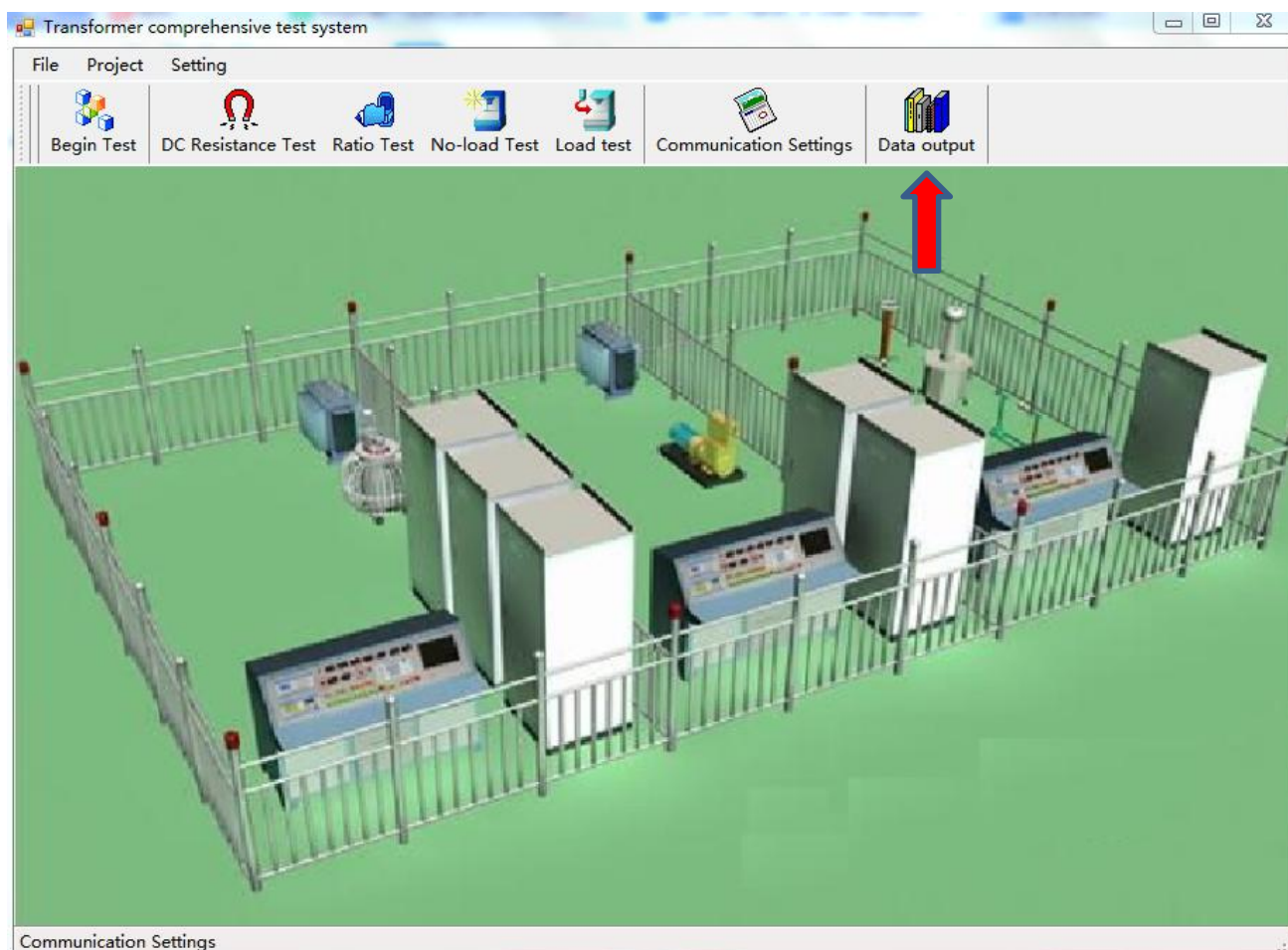


Figure 5 Data Output

Note: Please don't change the communication setting. All the Communication ports have been set already. Just need to make sure the serial communication cables are connected correct according to the below picture from testers to computer.

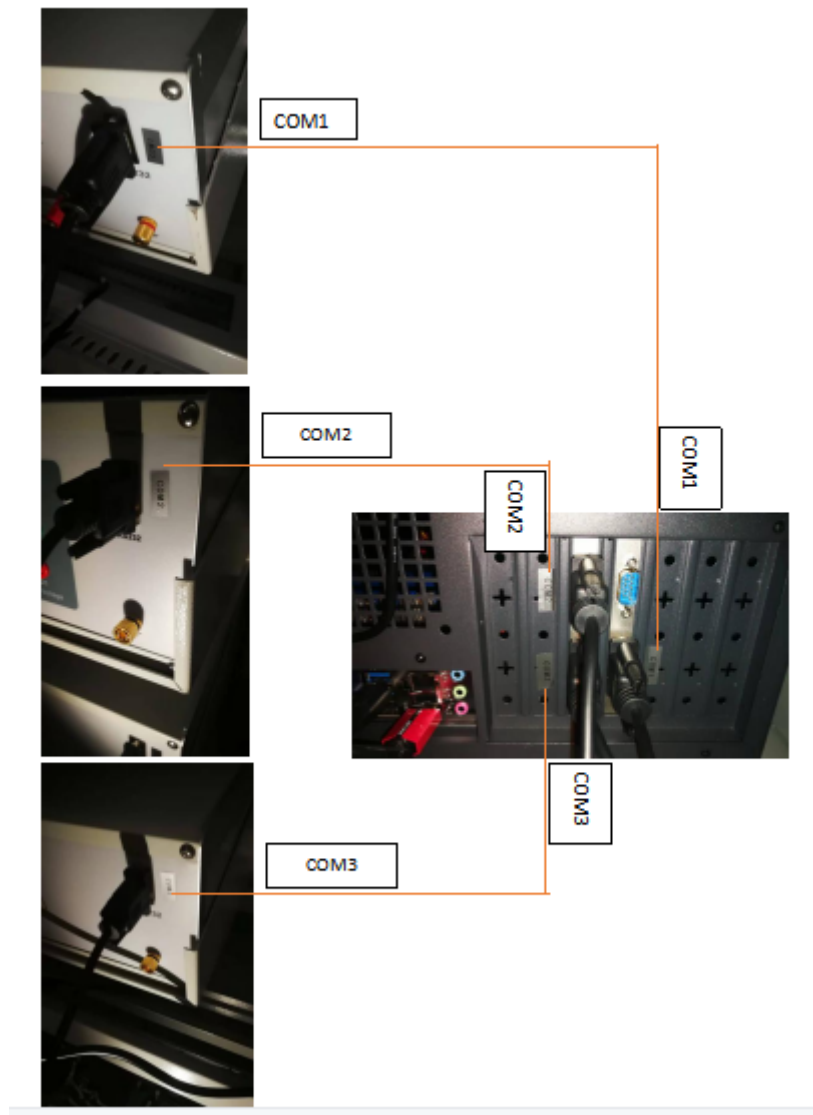


Figure 6 Serial cable connection diagram

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