

LNGZ-H CT PT Tester

Operation Instructions

1. Design purpose

Used for automatic testing of transformer characteristics such as protection, metering, GIS casing, zero sequence, etc.

2. Reference standards

GB16847-1997、DLT 1221-2013、(IEC 60044-1、IEC 60044-6)

3. Precautions

- In order to ensure the safety of persons and equipment, please carefully read the operation manual before using the tester.
- The tester shall be reliably grounded when used, or persons or equipment may be damaged.
- Touching the connection terminals in the test is strictly forbidden.
- The tested CT must be in offline state, or the normal application may be affected or the test result may be incorrect.
- The tester shall be operated by professional technicians.
- Individually opening the equipment may lead to permanent damage.

4. Panel Illustration

4.1.

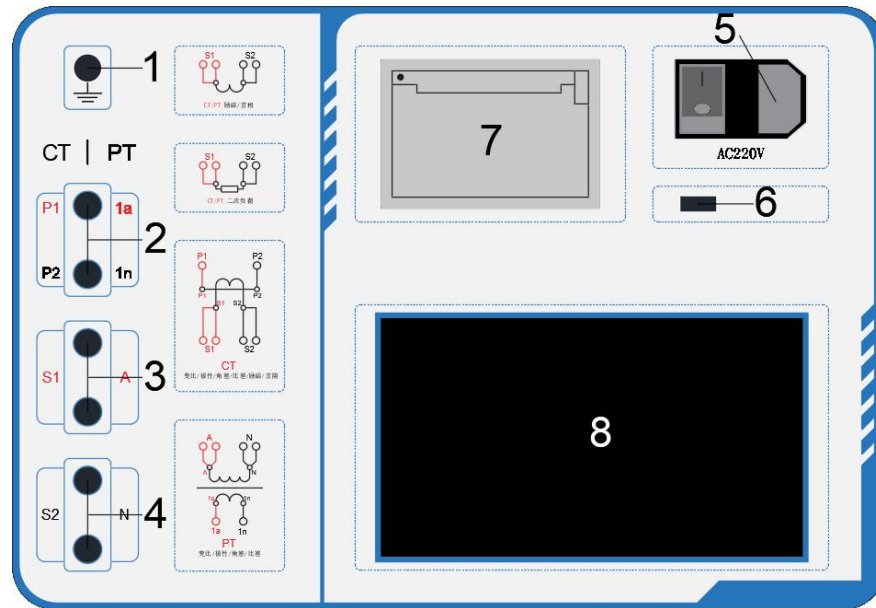


Figure 1

4.2. Note of Panel:

- | | |
|------------------------------------|---------------------|
| 1 ——— Grounding | 6 ——— USB |
| 2 ——— Voltage circuit signal input | 7 ——— Printer |
| 3 ——— Power Output | 8 ——— Monitor (TFT) |
| 4 ——— Current circuit signal input | |
| 5 ——— Switch, fuse (10A), socket | |

Precautions

1. To ensure equipment and personal safety, before testing, ensure that the tester is reliably grounded and ensure that the tested transformer is completely offline.
2. It is strictly prohibited to touch all test terminals during the experiment.

Our company reserves the right to modify this manual. In case of any discrepancy between the product and the manual, the actual product shall prevail.

5. Major Technical Parameters

Operational Power Supply:	AC220V±20V, 50Hz
Device output	0~180Vrms, 5Arms
Equivalent excitation voltage	2500
Excitation measurement accuracy	≤0.5%
Resistance measurement range	0.1~300 Ω / ≤0.5%
Load Range	5VA~1000VA / ≤0.5%
Error:	0.05%
CT ratio measurement range	≤25000A/5A (5000A/1A) /0.2%
PT ratio measurement range	≤500KV /0.2%
Work environment	Operating Temperature: : -20℃ ~ 50℃, Relative Humidity: : ≤90%, Altitude : ≤1000m
Overall Dimension	340mm × 270mm × 165mm, Weight:≤6Kg

6. Function Table:

I. Current Transformer (CT)	II. Voltage Transformer (PT)
<ul style="list-style-type: none">• Excitation Characteristic Test• Magnetization Curve• Transformation Ratio Test• Polarity• 5% and 10% error curve• Degauss• Automatic Calculation of Excitation Knee Point Value• Actual Secondary Load Test• Resistance Test	<ul style="list-style-type: none">• Excitation Characteristic Test• Transformation Ratio Test• Polarity• Degauss• Actual Secondary Load Test• Resistance Test

7. Working conditions requirements

1. Input voltage $220\text{Vac} \pm 10\%$, rated frequency 50/60Hz, allowable range 45-65Hz;
2. The quality of the input power supply may sometimes affect the testing results of the tester;
3. The ambient temperature corresponding to the parameter is $23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$;
4. The guarantee value is valid for one year after factory verification.

8. Parameter settings: efer to the transformer nameplate settings, otherwise it may affect some detection results.

9. Wiring diagram:

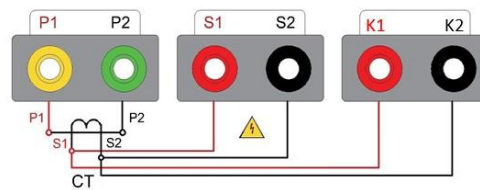


Figure 2: CT excitation/direct resistance/transformation ratio/polarity/angle difference/ratio difference

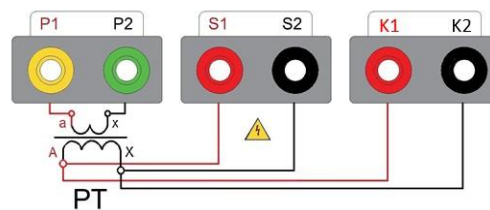


Figure 3: PT ratio/polarity/angle difference/ratio difference

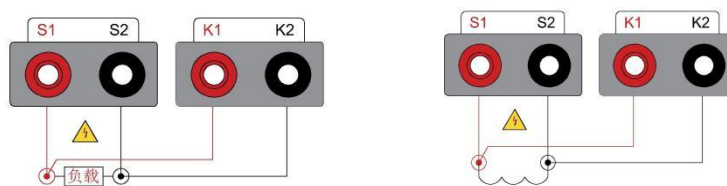


Figure 4. CT/PT secondary load

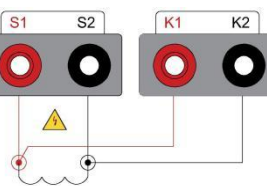


Figure 5, CT/PT excitation/DC resistance

10. Main interface

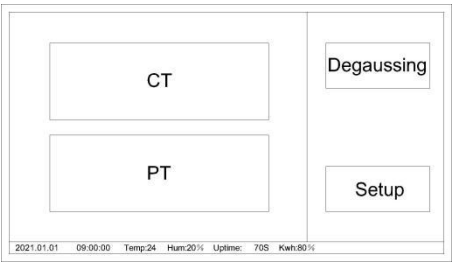


Figure 6、Main interface

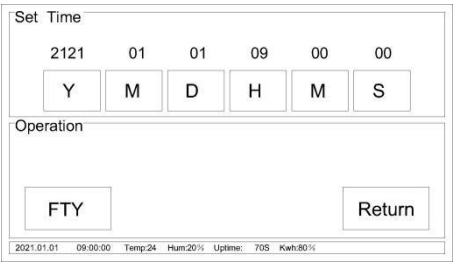


Figure 7、Set up

On the main interface (Figure 6), you can select "CT ", "PT ", Degaussing", and "Set UP" to proceed with the next steps.

When it is necessary to adjust the device display time, enter the Setup interface (Figure 7) to adjust the time.

11、CT test

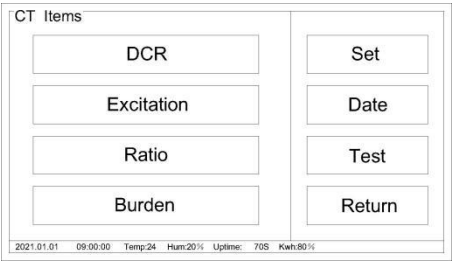


Figure 8. CT Test Interface

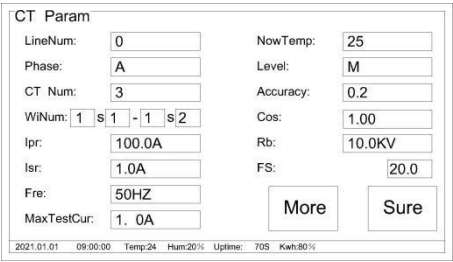


Figure 9. Basic Parameter Settings

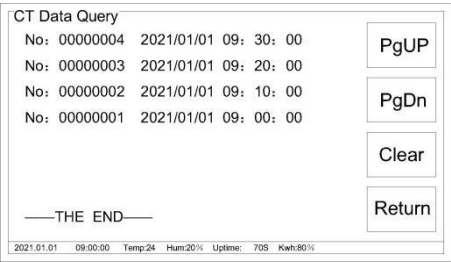


Figure 10: Data Query

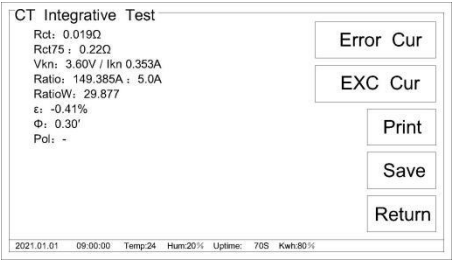


Figure 11, CT Comprehensive Test Results

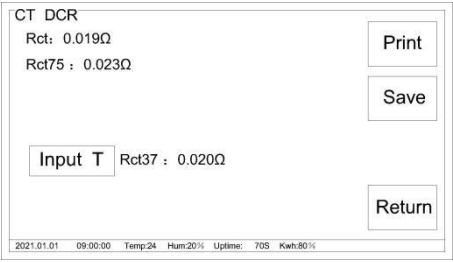


Figure 12, CT Direct Resistance Test Result Boundary

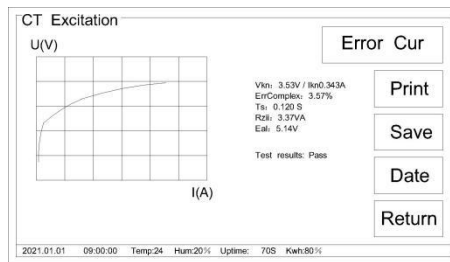


Figure 13. CT Excitation Test Results

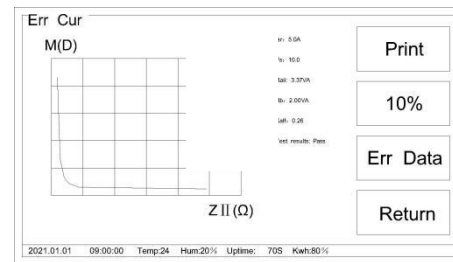


Figure 14. CT Error Curve

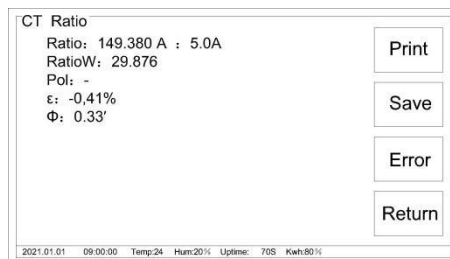


Figure 15. CT Transformation Ratio Test Results

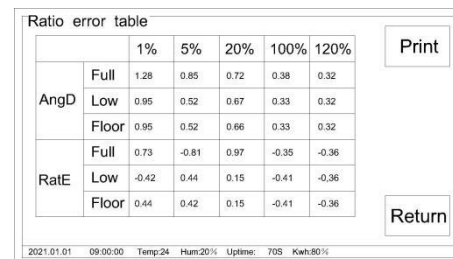


Figure 16. CT Ratio Difference Table

CT parameter setting: Input the corresponding parameters according to the transformer nameplate.

CT Comprehensive testing

Select to enter the CT interface (Figure 8) and refer to (Figure 2) for correct wiring. You can also select DCR, Excitation, and Ratio for testing at the same time. The test results are shown in Figure 11.

Note: The nameplate parameters should be set correctly, otherwise it may affect some detection results.

CT Sub item inspection

CT DCR: After correctly connecting the secondary winding of the transformer according to (Figure 5), select the DC resistance and click Test to automatically start the test.

The test results show the measured resistance value and the resistance value converted to 75 ° C. Click on the input temperature to calculate the resistance value at the corresponding temperature.

CT Excitation: After connecting the secondary winding of the transformer according to (Figure 5), select the excitation characteristics, and click on "Test" to automatically start the test.

The test results are shown in Figure 13. Calculate the inflection point value and display the excitation curve graph, and prompt whether the tested object is qualified. Click on the error curve (Figure 14) to display the error curve graph.

CT Ratio: After correctly wiring according to (Figure 2), select the polarity

of the transformer ratio and click Test to automatically start the test.

The test results are shown in Figure 15. The results show the actual current ratio, turn ratio, and polarity state (minus polarity in phase). Click on the error to view the ratio difference table (Figure 16). Clicking on the first and second input items can calculate any variable ratio based on the input data.

CT Burden: Press (Figure 4) to connect to the tested load/load, select the secondary load, and click Test to automatically start the test.

The test results show the actual secondary load and power factor.

Note: The test object of this project is not the transformer itself.

CT Date: Select Data Query (Figure 10) to view the saved data.

Data transfer: Select 'Transfer' in the saved data to transfer the current data to a USB flash drive.

save: After the detection is completed, select 'Save' to save the corresponding test results.

Warning: During the data transfer process, do not unplug or insert the USB drive. You should unplug it after the prompt "Transfer completed" is displayed.

12、PT test

Figure 17: PT Test Interface

Figure 18: Basic parameters of PT

Figure 19: PT Data Query

Figure 20: PT Comprehensive Test

Figure 21: PT DCR

Figure 22: PT Excitation Test

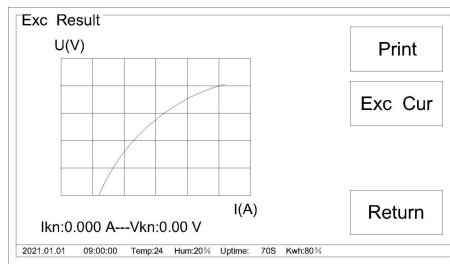


Figure 23. PT Excitation Result

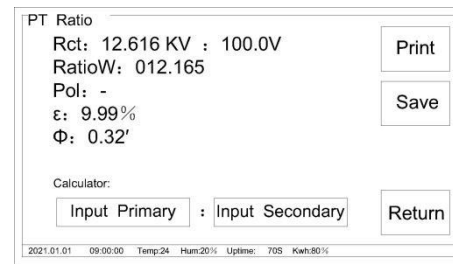


Figure 24. PT Transformation Ratio Results

PT Parameter settings: Refer to the transformer nameplate and input the corresponding parameters.

PT Comprehensive testing

After entering the PT interface (Figure 17) and wiring according to (Figure 3), select DCR and Excitation to achieve dual item simultaneous testing. The results are shown in Figure 20.

Note: The nameplate parameters should be set correctly, otherwise it may affect some detection results.

PT Sub item inspection

PTDCR: Connect the secondary winding of the transformer according to (Figure 5), select the DC resistance, and click Test to automatically start the test.

The test results show the measured resistance value and the resistance value converted to 75 ° C. Click on the input temperature to calculate the resistance value at the corresponding temperature.

PTExcitation characteristic test: Connect the secondary winding of the transformer according to (Figure 5), select the excitation characteristic, and click on "Test" to automatically start the test

The test results are shown in Figure 22. Click on excitation to view the excitation curve, and the excitation data is given based on the rated secondary current.

PTTransformation ratio polarity test: Select the polarity of the transformer ratio according to the wiring shown in Figure 3 and click on the test button. The results are shown in Figure 24. The results show the actual current ratio, turn ratio, and polarity state (minus polarity in phase). Click once or twice to view the variation ratio of any point.

PT Burden: Press (Figure 4) to connect to the tested load, select the secondary load, and click Test. The results show the actual secondary load and power factor.

Note: The test object of this project is not the transformer itself.

PT Date: Select Data Query (Figure 19) to view the saved data.

Data transfer: Select 'Transfer' in the saved data to transfer the current data to a USB flash drive.

save: After the detection is completed, select 'Save' to save the corresponding test results.

Warning: During the data transfer process, do not unplug or insert the USB drive. You should unplug it after the prompt "Transfer completed" is displayed.