

OLTC.500A

Product Overview

- The on-load tap-changer is the only moving part that is connected to the transformer circuit, so the detection of the on-load tap-changer is getting more and more attention.
- In the "Procedures for Handling and Preventive Tests for Electrical Equipment", it is required to check the sequence of actions and the switching time of the on-load tap-changer.
- The OLTC.500A on-load tap-changer tester is mainly used to measure the transition waveform, transition time, transient resistance value, and three-phase synchronization of the on-load tap-changer.



Measuring Function:

- 1. This test device uses the AC and DC method for testing. The purpose is to test the real transition waveform (without filtering the waveform). It is suitable for testing the transition waveform of the on-load tap changer of the transformer at the substation site with windings. Transition time, three-phase synchronicity and other parameters are measured. It can determine the hidden defects of the equipment such as switch transition current interruption, poor contact, transition resistance bridging time exceeding the regulatory requirements, etc.
- 2. This test device uses the AC and DC method to test whether the on-load tap-changer has a hidden fault. The criterion is very clear. It is to analyze and observe whether the transition waveform during the entire switching process of the on-load tap-changer is continuous. If the waveform is continuous, it means there is The working condition of the on-load tap changer is good.
- 3. When using this test device to test, the wiring is not restricted by the wiring method of the transformer winding. It can test various wiring group switches with voltage levels of 10kV ~ 500kV, such as: YN.d, YN.y0, or Y.y0, D.y0 (the voltage regulating winding of the transformer is on the primary side, no neutral point lead) three-phase, single-phase transformer on-load tap-changer operating characteristics for AC testing.
- 4. This test device has two wiring methods: built-in power supply and external power supply. The equipment can output three-phase power supply, making on-site test wiring very convenient. The external power supply can carry out high voltage test and zero sequence test.
- 5. This test device has a high sampling speed, with a collection speed of more than 200 k/s/channel (general DC method tester collection speed is 10 k/s). The amount of data stored is large, and the cache depth reaches 8 M byte FIFO. If there is a weak contact defect during the switch operation. The AC method can be clearly reflected in the waveform.
- 6. System configuration of this test device. The data processing system is composed of an embedded computer and test software. The display adopts a 10.4-inch large color screen, English test interface, and touch screen writing method. The system supports U disk storage of data, and supports USB keyboard and mouse. , this device is equipped with a micro printer, which can directly print out test results on site.
- 7. This test software has the function of offline analysis or re-editing of test reports. The data can be imported into the office computer and the test waveform can be re-analyzed or edited.
- 8. This device adopts an integrated structure, which is easy to carry on site and the test wiring is simple and convenient.
- 9. Test software functions:
 - ①.State parameter self-learning function. During the experiment, it is necessary to calculate the phase and phase difference in real time and accurately provide the initial parameters. The program is designed with a self-built and automatically updated benchmark function. Before each test, the instrument automatically obtains the voltage, current, frequency, and phase data of the test as the benchmark parameters of the test and compares it with the dynamic real-time parameters during the switching action to test the trigger blind zone limit. Less, which greatly improves the reliability of test triggering and shortens the test time.
 - ②. This device adopts color liquid crystal display, and the real-time curve moves quickly on the screen, truly reflecting the test change process.
 - ③. This test software is designed with automatic test and manual test functions. The recorded waveform can be played again, enlarged, reduced, edited and other functions.
 - ④. Memory compression storage technology, pre-trigger recording depth can reach 6 channels and up to 800 cycle depth, providing rich original data for data analysis.
 - ⑤. The program and operating system are loaded on the solid-state hard drive, without using platters, and writing operations to the memory are blocked, so that the memory is most effectively protected.
 - ⑥. The test software can edit and analyze data under WIN2000, XP and WIN7 systems. Test reports are automatically generated, and test data and waveforms can be imported or exported.

Technical Specification:

Working environment conditions

- 1.1 Ambient temperature: $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$;
- 1.2 Environmental humidity: $\leq 80\%$;
- 1.3 Altitude: $\leq 2000\text{m}$.

Working power supply

- 2.1 Single-phase voltage: $220 (1 \pm 10\%) \text{ V}$;
- 2.2 Frequency: $50\text{Hz} \pm 1\text{Hz}$;
- 2.3 Waveform: sine, waveform distortion rate $\leq 2\%$.

Output test power in the instrument

- 3.1 AC output power frequency: $50\text{Hz} \pm 0.2\text{Hz}$ (frequency adjustable);
- 3.2 AC output voltage range: three-phase four-wire $0 \sim 500\text{V}$ (voltage adjustable);
- 3.3 AC output capacity: rated 1000VA ;
- 3.4 AC power supply waveform distortion rate: $\leq 3\%$;
- 3.5 AC power voltage phase angle: 120° , phase angle difference $\neq 120^{\circ} \pm 1^{\circ}$.
- 3.6 DC current output range: 0.5A , 1A (two levels optional)

Instrument test accuracy

- 4.1 Number of synchronous acquisition channels: 6
- 4.2 Accuracy of collected data: 16 bits
- 4.3 Acquisition speed: 200 k/s/channel
- 4.4 Acquisition board cache depth: 8 M byte FIFO
- 4.5 Voltage range: $0\text{V} \sim 500\text{V}$.
- 4.6 Current range: $0\text{mA} \sim 100\text{mA}$, $0\text{A} \sim 10\text{A}$;
- 4.7 Voltage and current test accuracy: 0.5 level;
- 4.8 Resistance range: 0.5A range $0 \sim 20\Omega$; 1A range $0 \sim 10\Omega$ (If the measurement range cannot meet user requirements, a wide-range on-load tap changer parameter tester can be customized from our company)
- 4.9 DC resistance measurement accuracy: $\pm(5\% + 0.1\Omega)$.

Insulation performance

- 5.1 Insulation resistance: The insulation resistance of the power input end to the chassis is $> 20\text{M}\Omega$.
- 5.2 The insulation level of the test device should be able to withstand 1500V AC voltage (effective value)

Weight volume

- Weight: 30kg (excluding test line).
- Volume: $530 \times 320 \times 600 \text{ (mm)}$