Huazheng®

HZJZ-III

Arrester Monitor Calibrator

Huazheng Electric Manufacturing (Baoding) Co., Ltd

Dear user:

Thank you for choosing HZJZ-III Arrester Monitor Calibrator.

We hope that this instrument can make your work easier and more enjoyable, so that you can get the feeling of office automation in the test and analysis work.

Before using the instrument, please read this manual, and operate and maintain the instrument according to the manual to prolong its service life. "Just a light press, the test will be completed automatically" is the operating characteristics of this instrument.

If you are satisfied with this instrument, please tell your colleagues; if you are not satisfied with this instrument, please call (0312) 6775656 to tell you to serve you at all times-Baoding Huazheng Electric Manufacturing Co., Ltd., our company will definitely make you satisfied !

Content

With the continuous development of science and technology, the function of the arrester discharge counter is not only used to record the number of lightning strikes, but also to monitor the leakage current of the arrester online. Our newly developed lightning arrester online monitor calibrator is an instrument with both impact test and ammeter calibration.

I.Technical Parameters

Input voltage: AC220V±10% 50Hz; DC12V

Impulse voltage: 0-1600V Accuracy: 2%±5V

(Higher voltage can be customized)

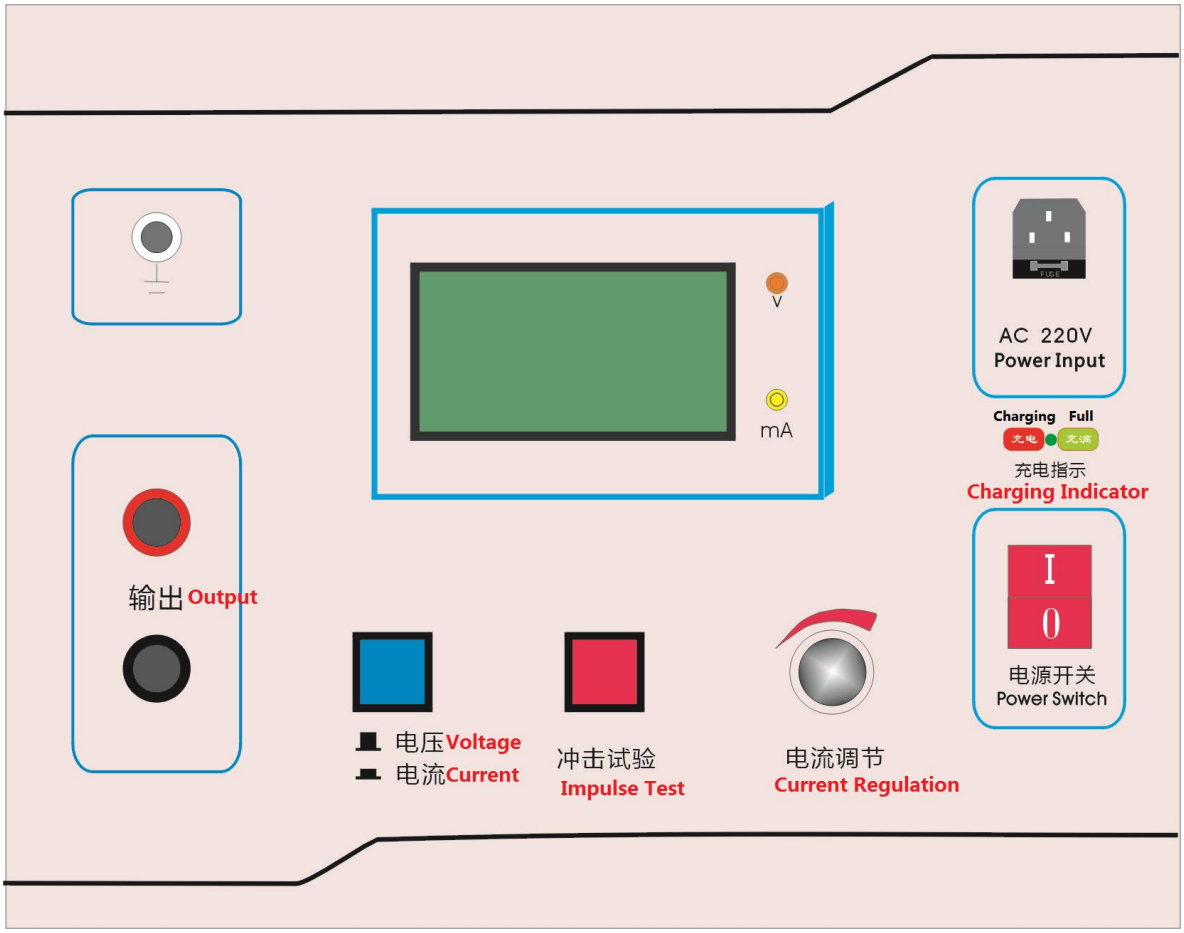
Impulse current: >100A (8/20μS square wave)

Calibration current: 0-10mA, ±2%±3 words

Instrument power consumption: ＜30VA

Appearance size: 320×240×150mm

II.Panel



III.Impact Test

3.1 Test principle

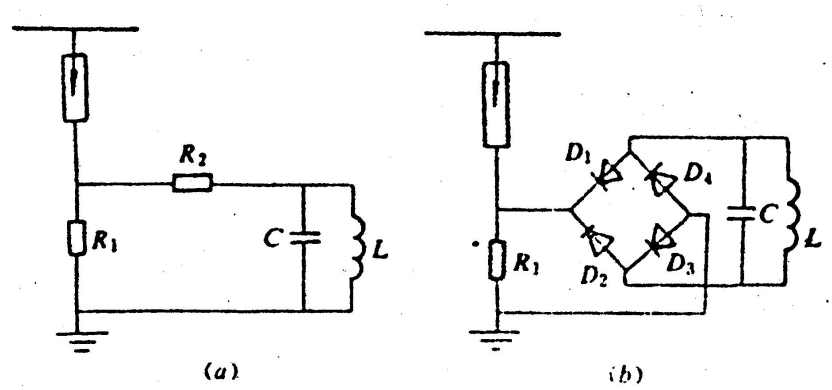


Figure 1 Principle wiring of JS type action counter

(a) JS type; (b) JS8 type

R1, R2 non-linear resistance; C energy storage capacitor

L counter coil; D1~4 silicon diode

Figure 1 shows the principle wiring diagram of the JS type action counter. Figure 1 (a) shows the basic structure of the JS type action counter, the so-called double valve plate structure. When the arrester is activated, the discharge current flows through the valve plate R1, and the voltage drop on R1 charges the capacitor C through the valve plate R2, and then C discharges the inductance coil L of the electromagnetic counter to make it rotate by 1 grid. 1 times. Changing the resistance of R1 and R2 can make the counter have different sensitivity. Generally, the minimum operating current is an impulse current of 100A (8/20μs). Because there is a certain voltage drop on R1, the residual voltage of the arrester will increase, so it is mainly used for high-voltage arresters above 40kV.

Figure 1(b) shows the structure of the JS-8 action counter, which is a rectifier structure. When the arrester operates, the voltage drop on the high-temperature valve plate R1 is fully-wave rectified to charge the capacitor C, and then C discharges the L of the electromagnetic counter to make it count. The resistance value of the valve plate R1 of this counter is small (the pressure drop at 10kA is 1.1kV), the current capacity is large (1200A square wave), and the minimum operating current is also 100A (8/20μs) impulse current . JS-8 type counter can be used for 6.0 ～ 330kV system lightning arrester, JS-8A type counter can be used for 500kV system lightning arrester.

3.2 Inspection method of the action and Principle of the counter detector

Due to poor sealing, moisture or moisture may enter the action counter during operation, which will rust the internal components and cause the counter to not operate normally. Therefore, the "Regulations" stipulates that it should be inspected once a year. The methods to check the operation of the counter on site include capacitor discharge current branch, AC method and standard impulse current method. Research shows that the standard impulse current method is the most reliable, and its principle wiring is shown in Figure 2.

The 8/20μs, 100A impulse current wave generated by the impulse current generator is applied to the action counter. If the counter operates normally, the instrument is in good condition, otherwise it should be disassembled and repaired. For example, a certain electric power bureau used this method to detect 27 counters, of which 3 did not move, and the disassembly found that the internal components were damp and damaged.

The "Regulations" stipulate that the continuous test should be performed 3 to 5 times, and the normal action should be performed each time, and the time interval between each time should not be less than 30s. The recorder should be adjusted to 0 after the test.

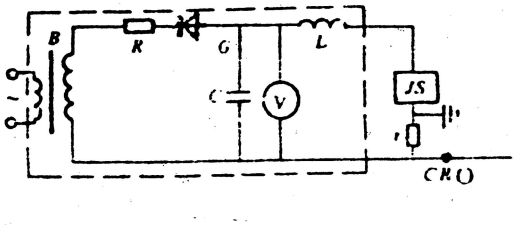


Figure 2 Principle wiring of standard impulse current detection method

(The dashed box is the impulse current generator)

C-charging capacitor JR-charging resistance L-damping inductance

D-silicon rectifier diode r-shunt; B-test transformer;

V electrostatic voltmeter CRO high voltage oscilloscope

3.3 Operation Method

1. Connect the output end of the instrument to the two ends of the arrester counter (the connecting wire should be as short as possible), the red end is connected to the upper end, and the black end is grounded.

2. After connecting the power cord, check whether the instrument and wiring are correct, and then start the test after confirming that it is correct.

3. Turn on the power switch (the power light is on), and after the meter is charged to 600V or more, you can start the calibration.

4. Press the impact test button, the output voltage will drop immediately, at this time you can observe the action of the counter Condition.

5. If multiple tests are required, when the output voltage reaches 600V or more, press the impact test button again and observe the action of the counter.

6. After the inspection is completed, immediately turn off the power supply, and then remove the wiring when the output voltage has completely returned to zero.

7. If you press the impact test button and the output voltage does not drop, you should turn off the power supply. After the voltage indicator returns to zero, check whether the circuit has a break or the discharge counter is not suitable for the model specified in the technical indicators.

IV. Ammeter Calibration

When the instrument is turned off, the wiring method forms a loop like the impact test. After connecting the wire, press the current-voltage switch before it can be turned on! At this time, the instrument is in the current output state.

During calibration, adjust the current adjustment potentiometer and compare the indicator on the dial of the instrument with the display on the dial of the sample to determine whether the current indicator of the sample is correct or not!

Suggestion: Perform rough calibration first, compare the accuracy of the large scale, and then adjust the current to within 2mA, perform accurate calibration, and determine the reliability of the test product!

V. Precautions

1. When removing the wiring, if the output voltage does not return to zero, the operator cannot touch the non-insulated part of the test wire to avoid personal accidents.
2. During current calibration, the test product cannot be operated with electricity.
3. After the instrument has used the DC power supply test, the battery in the instrument should be charged and maintained in time.
4. During the DC test, if the undervoltage indicator is on, stop using the DC power supply and switch to the AC power supply for testing.
5. When the instrument is not used for a long time, the battery pack in the instrument should be charged and maintained regularly (two months). Generally, charge for about 14 hours until the "full" indicator lights up.

VI. Packing List

NO.	Name		Quantity
1	Test line	Red	1
		Black	1
2	Ground lead		1
3	Power Cable		1
4	Fuse		2