

HZ-109S3

Primary Current Injection Test Set



Safety Precautions

1. To ensure the safe conduct of the test, the device should be reliably grounded before the test.
2. The power supply voltage should be $380V \pm 10\%$.
3. It is strictly prohibited to connect or disconnect test wires while the test is in progress.
4. The input power cable of this tester should have a cross-sectional area greater than 8mm^2 , and the high-current output connecting cable should have a cross-sectional area greater than 250mm^2 . Additionally, the length of the output connecting cable should be minimized as much as possible.
5. Whenever possible, use parallel output as long as it meets the output current requirements.
6. Avoid continuous output of high current for extended periods of time.

Dear user:

Thank you for choosing HZ-109S3 Primary Current Injection Test Set.

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 !

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I. Overview

The HZ-109S3 (380V) High Current Generator employs ARM chip-controlled output technology and a high-capacity toroidal transformer, equipped with a liquid crystal display (LCD) ammeter that simultaneously shows primary and secondary currents as well as the transformation ratio. Housed in an aluminum alloy case with a PC panel, it features an aesthetically pleasing appearance, high output capacity, compact size, and light weight. It is primarily suitable for applications in power systems that require high current testing, such as CT transformation ratio testing and contact resistance testing.

II. Main Performance Specifications

2.1 Input Power: AC: two-phase 380V·50A, 50Hz;

2.2 Output Current: AC: 3000A·5V or 1500A·10V;

2.2 Digital LCD display, simultaneously showing primary and secondary currents, and transformation ratio;

Primary Current Range: 0-3500A, Resolution: 0.1A;

Secondary Current Range: 0-6A, Resolution: 0.001A;

2.3 Accuracy: True RMS (0.3% of reading + 0.2% of full scale);

2.4 Operating Environment: Temperature -10°C to 40°C, Relative Humidity <80%;

2.5 Dimensions: Main Unit: 380mm×350mm×(360+70)mm;

External Voltage Regulator: 340mm×290mm×430mm;

2.6 Weight: Main Unit 65Kg, External Voltage Regulator 45Kg.

III. Panel and Function Description

(I) Host Panel



- 3.1.1 High current output terminals for 3000A·5V or 1500A·10V;
- 3.1.2 High current series/parallel connection plate, placing the two plates in the middle for series connection, and on both sides for parallel connection;
- 3.1.3 Series/parallel button, when the two plates are placed in the middle, pressing the button sets it to series connection;
- 3.1.4 Secondary current measurement input terminal;
- 3.1.5 Stopwatch input terminal and stopwatch potential or contact switch;
- 3.1.6 LCD screen (displaying primary and secondary current values, start, and cut-off);
- 3.1.7 Working power input terminal, power supply for the fan and LCD screen;
- 3.1.8 LCD screen contrast adjustment;
- 3.1.9 Optical rotary mouse: Operate the instrument menu, output, and cut-off by rotating and pressing the optical rotary mouse.
- 3.1.10 Power input terminal, connected to the output terminal of the external voltage regulator (0~430V adjustable main power supply);
- 3.1.11 Grounding terminal, for safety purposes, this terminal should be reliably grounded during use.

(II) Voltage Regulator Panel



3.2.1 Power Switch: A fast-acting protective switch used for device input power control and overload protection;

3.2.2 Working Power Output Terminal: Connect to the working power input terminal of the main unit using the company's dedicated cable;

3.2.3 Voltage Regulator Output Terminal: Connect to the voltage regulator input terminal of the main unit using the company's dedicated cable;

3.2.4 Voltage Regulator Power Input Terminal: AC: 380V·50A;

3.2.5 Voltage Regulator Power Input Indicator Light: This indicator light turns on when there is power input, regardless of whether the device is turned on or off. If the indicator light does not turn on, it indicates that there is no power input to the incoming line. Please check the power inlet line;

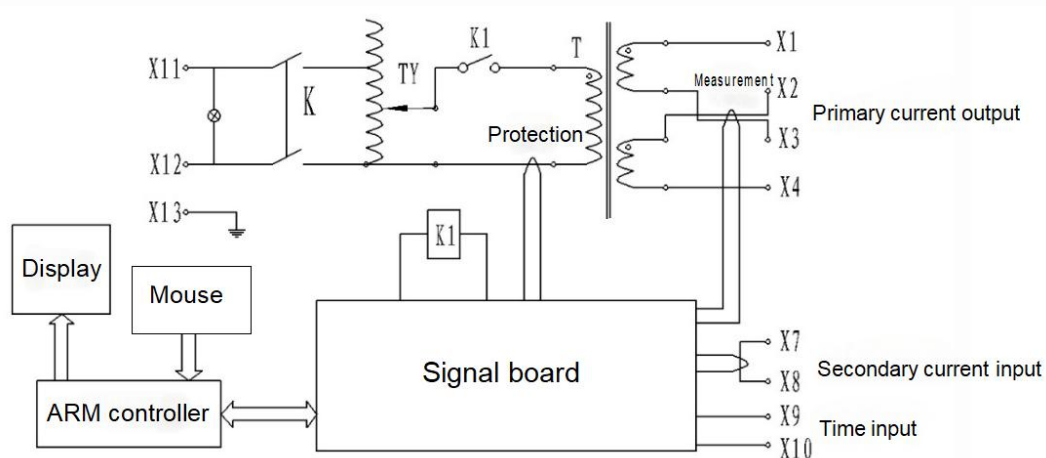
3.2.6 High Current Output Adjustment Knob;

3.2.7 Grounding Terminal: For safety purposes, this terminal should be reliably grounded during use.

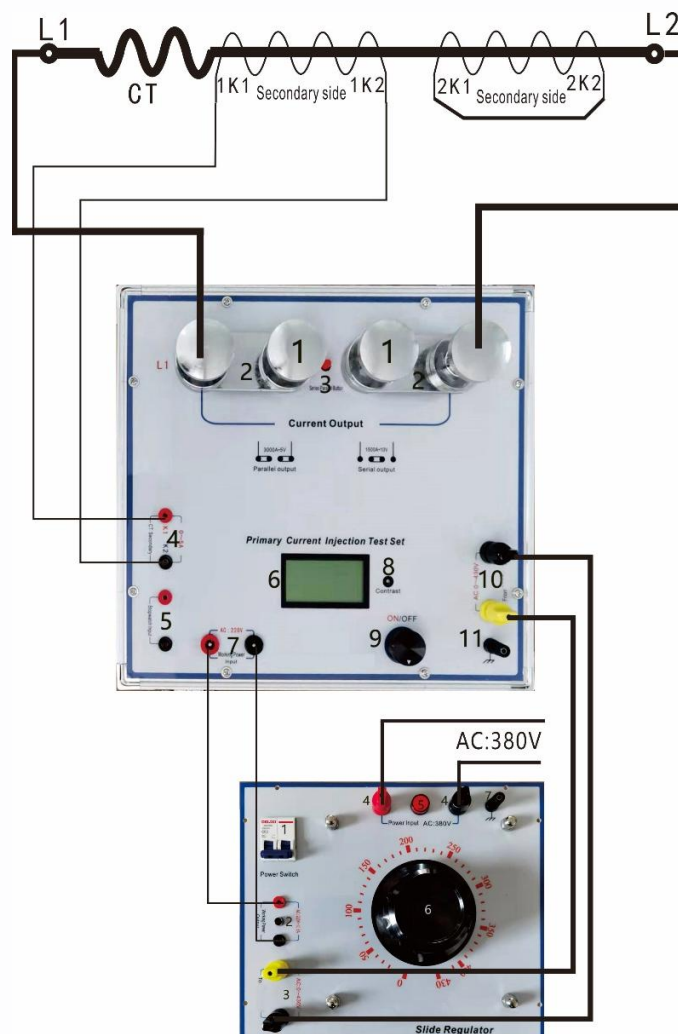
IV. Working Principle

The circuit is shown in the figure below. The AC: 380V power supply is input through X_{11} and X_{12} , regulated by the TY voltage regulator, and the current is stepped up by the T current transformer. The high current is output through the current transformer at X_1 and X_5 . When the two sets of coils are connected in parallel for output, they can deliver a current of 3000A at a voltage of 5V; when the two sets of coils are connected in series for output (i.e., with the connection plate in the middle), they can deliver a current of 1500A at a voltage of 10V.

The ARM controller processes data display and control output from the mouse and signal board.



V. Usage Instructions



Use the company's dedicated power input cable, dedicated high-current output cable, secondary circuit cable, or stopwatch input cable, as well as the grounding cable. After

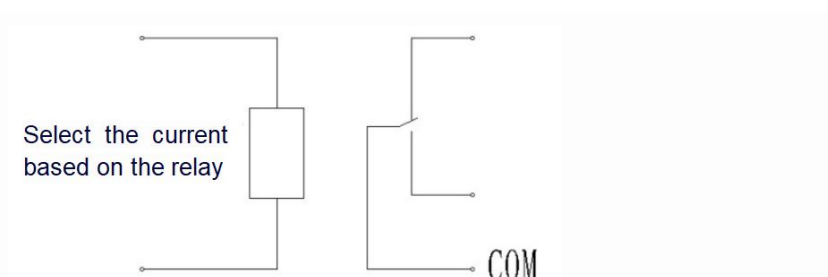
connecting them properly, first set the voltage regulator to zero, then plug in the 380V power supply (if the power outlet at the site is far away and a power distribution board is needed, the wire cross-section should be no less than 12.0mm², otherwise it may affect the output power). Turn on the main switch, and the screen will display "Welcome to use the High-Current Tester" before entering the user interface. As shown in the figure below, at this point, press the rotary mouse to change "Start" to "Stop". Then adjust the knob of the voltage regulator, and the high-current terminal will output current, with the primary current value displayed on the primary ammeter. If the secondary current input cable is also connected, the secondary current value will be displayed on the meter, along with the transformation ratio (0.000/5) of the tested transformer. If the stopwatch input cable is connected, the action time will be displayed after the stopwatch contact activates, and the "Off" on the meter will change to "On". Pressing the rotary mouse again will change "Stop" back to "Start", and the output will stop. By rotating the rotary mouse, select the '5' in the transformation ratio and press to change it to '0.000/1'. After outputting, the displayed value will be the transformation ratio of the transformer.

"Dual Channel": refers to internal start and contact or potential stop; "Single Channel": refers to external start and external stop. When the cursor selects "Dual Channel" and presses, it changes to "Single Channel". "Reset": when the cursor selects this text and presses, it resets the stopwatch.

Transformation ratio: 0.000/5	
I1: 0.0A	I2: 0.000A
Stopwatch: 0.0000S	Off
Start	Reset Dual channel

Operation of the stopwatch: The default setting upon startup is dual channel, where the instrument starts internally and stops via external contacts (or potential). The stopwatch contacts should be connected to the normally open or normally closed contacts of the circuit breaker (or the potential action point; note: if there are no contacts, find the point where the action potential occurs). First, adjust the knob of the voltage regulator while in the output state to ensure the circuit breaker activates. At this point, cut off the output,

connect the stopwatch cable to the action contact (or action potential point) of the circuit breaker, and then press to start the output again to obtain the action time. The wiring is shown in the diagram below:



Single channel operates by starting the meter with a contact (or potential) action and stopping it with another contact (or potential) action. The circuit breaker current can be externally applied.

VI. Packing list

No.	Item	Qty
1	HZ-109S3 (220V) High-Current Generator Main Unit	1
2	HZ-10 Contact Voltage Regulator	1
3	High-Current Test Cable	6
4	Cable Box	2
5	Dedicated Power Input Cable (8mm ² -2.0m)	2
6	Dedicated Connection Cable for Voltage Regulator and Main Unit (8mm ² -1.0m)	2
7	Dedicated Two-Core Sheathed Cable for Working Power Supply (2×1.2mm ² -2m)	1
8	Two-Core Sheathed Cable (2×1.2mm ² -5m)	2
9	Transparent Grounding Cable (2.5mm ² -1m, 2m)	One each
10	Connecting Tabs (8mm)	3
11	Dedicated Clips (10mm)	5
12	User Manual	1
13	Warranty Card	1