

## SXIC5B Surge Generator

### Brief Introduction

The SXIC5B surge generator can generate impulse current ( upto 5kA 10/350 $\mu$ s) for testing of Lightning Rod. The surge generator is designed for indoor use.

### Ambient conditions for the whole impulse test system

Altitude: less than 1000m;

Environmental temperature:  $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$ ;

Relative humidity: 85% (20 $^{\circ}\text{C}$ ) , no condensation;

Operation: indoor;

Without inductivity dust, fire and corroding metal;

No corroding metal and insulated air;

Earth resistance is less than 0.5  $\Omega$  with an independent earthing system;



### Advantages and features

- 1) Automatic polarity switching
- 2) Open structure for expand waveforms
- 3) Easy operation and maintenance
- 4) Liquid insulation in the impulse capacitors offers optimal environmental compatibility (no PCBs). The impulse capacitors have very low inductance, high quality and long service life.

### 5) Considerate safety measures

- Door safety interlock
- The whole cabinet is grounded to earth.
- Manual earthing rod-- when the operator opens the back door of the cabinet to change the impulse module or do some maintenance work, the manual earthing rod should be hanged in the place to discharge the energy of HV terminal to ensure the safety of the operator.



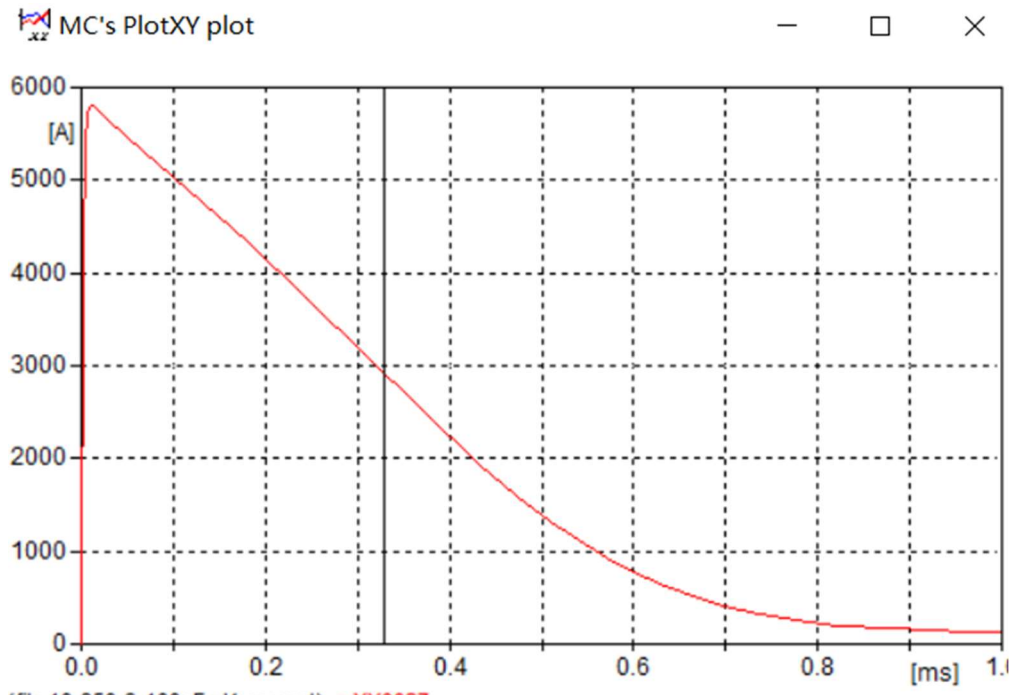
Manual earthing rod

- Automatic earthing system--the machine will automatically discharge the energy through the earthing stick after each impulse.
- Green/Red warning lamp indication on top of the machine, which is easy to be watched. It is red when the test is going; It is green color when the test is finished.

### Main technical parameters

- 1) Input power supply: L to N 230V, AC, 3kVA, 50Hz
- 2) Max charging voltage: 7kV DC;
- 3) Output waveform:  
10/350 $\mu$ s impulse current module
  - Wave shape:  $T_1=10\mu\text{s}\pm 10\%$ ,  $T_2=350\mu\text{s}\pm 15\%$ ;
  - Max. current amplitude: 5 kA
  - Min. current amplitude: 0.5 kA
  - Tolerance of peak current:  $\pm 10\%$ ;
  - Tolerance of Q:  $\pm 20\%$ ;
  - Tolerance of W/R:  $\pm 35\%$
- 4) Impulse interval time: 60 seconds charge and discharge;
- 5) Generator impedance is about 1.38 Ohm;
- 6) Dimension: 600\*1000\*1800mm (Height)
- 7) The system can output 5.8kA 10/350 $\mu$ s when the charging voltage is 8kV. (We don't

suggest to charge impulse capacitors too often @ 100% rated voltage in consideration of the life time.)



Scope of supply

Item	Quantity (pc)	Description	Technical Data
1		Impulse current generator includes:	
1.1		3pcs Impulse capacitors	8kV, Total 260 μ F, charging voltage:0.7~7kV;
1.2	1 set	Wave shaping resistor	With low inductance
1.3	1	Central spark gap	Graphite electrode
1.4	1	Automatic earthing system	resistor, switch and motor
1.5	1	Manual earthing rod	Yellow color
2	1	HV DC Charging Unit includes the below items:	
2.1	1	Charging transformer: input 220V, output 8kV, power:500VA	Oil filled transformer
2.2	1	Polarity change unit	
2.3	1	Silicon control rectifier	
2.4	1	Protective resistor	
2.5	1	DC voltage divider	To measure the charging voltage
3	1	Instruction manual in English	

4	1	Electrical drawing in English	
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## Function of Control Software

a) We use touch panel with the software as the control system.

The functions of control software are as below:

- 1) Set the charging voltage, interval time, number of test (can be from 1 till 99);
- 2) **Safety:** The system has set the maximum charging voltage for 10/350 $\mu$ s. In case the operator sets the charging voltage above this value, the machine will not charge at all. It will give the error tips.
- 3) **Door safety interlock**
- 4) Select the positive polarity or negative polarity, the machine will change the polarity automatically;
- 5) Once the charging voltage is set, the gap distance will be adjusted automatically to the desirable value.
- 6) There are information tips on the touch panel to show the error information or running condition.



Set charging voltage, interval time and test numbers

**GCW20.3 Combination Wave Generator** 13:40:08  
2016/5/31

Manual Gap Adjustment

● Ready   
 ● Emergency   
 ● Door Interlock   
 ● Power   
 ● Uneath   
 51.1mm Gap Distance   
 No Polarity Polarity

Waveform Type Combination 1.2/50 & 8/20 Waveform 2Ω

Charging Status

Charging Voltage	0.0/0kV	Test Number	0 / 1	Test Interval	0 / 15s
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Operate Info. Set the test parameters first   
 Trouble Info. PLC isn't running

Ready   
Start Test   
Manual Trigger   
Uneath   
Parameter Setting

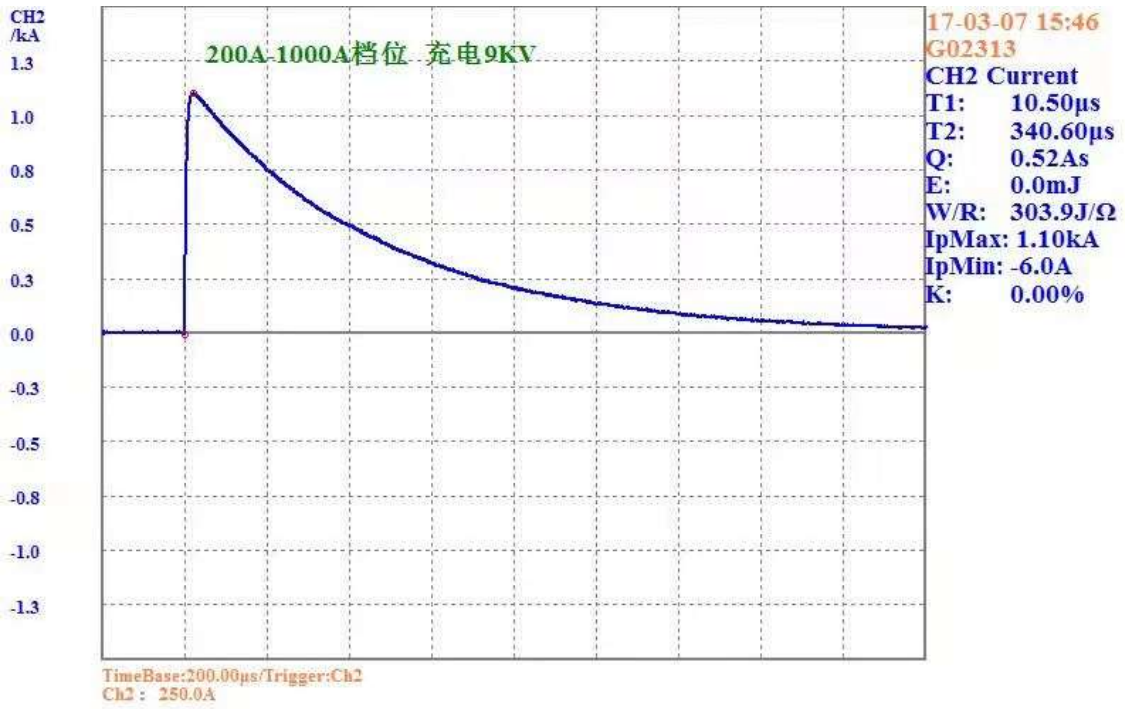
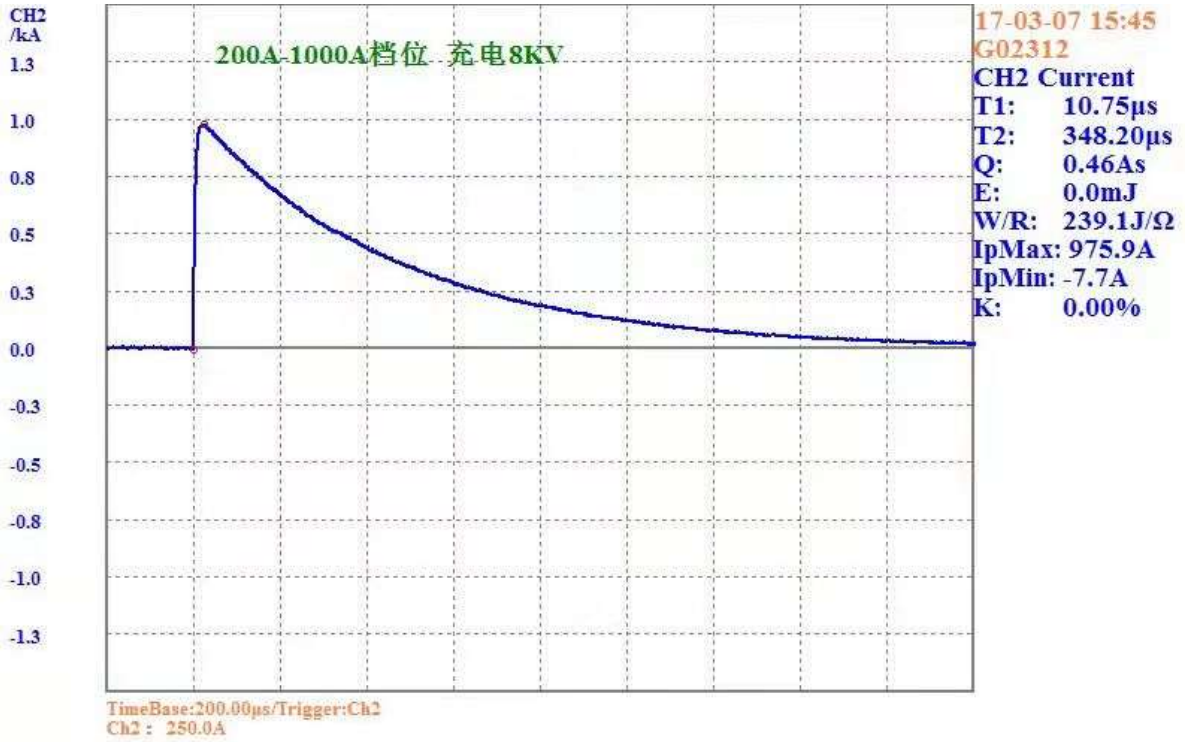
**Table of Charging Voltage and Gap**

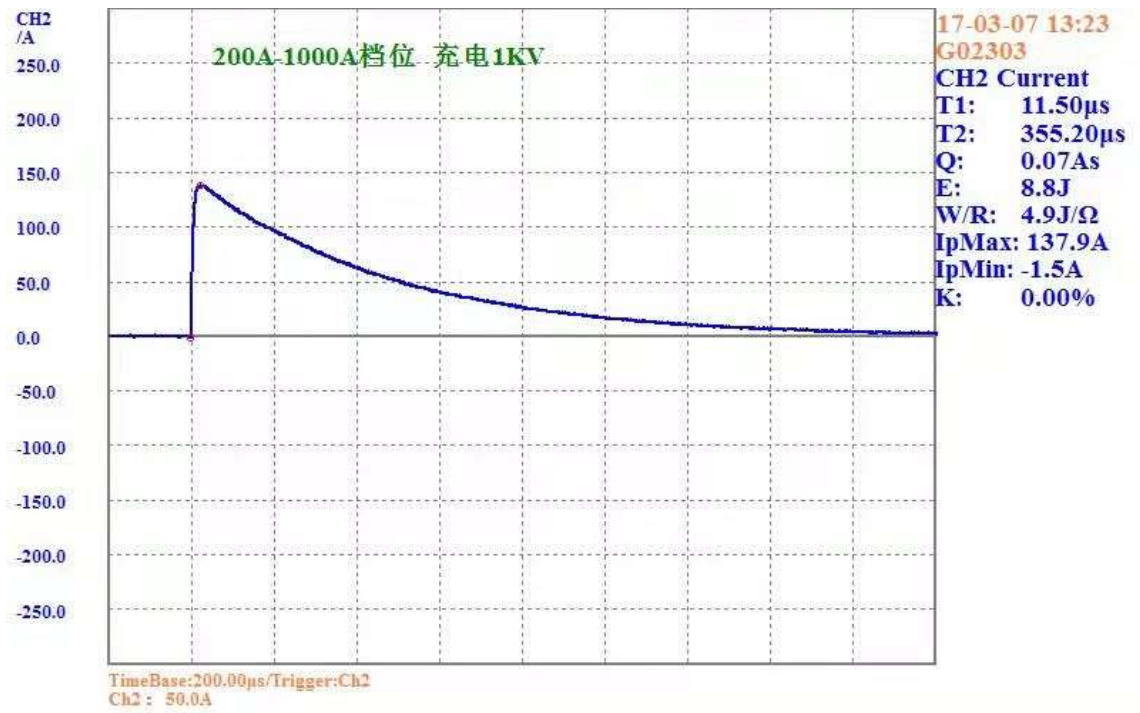
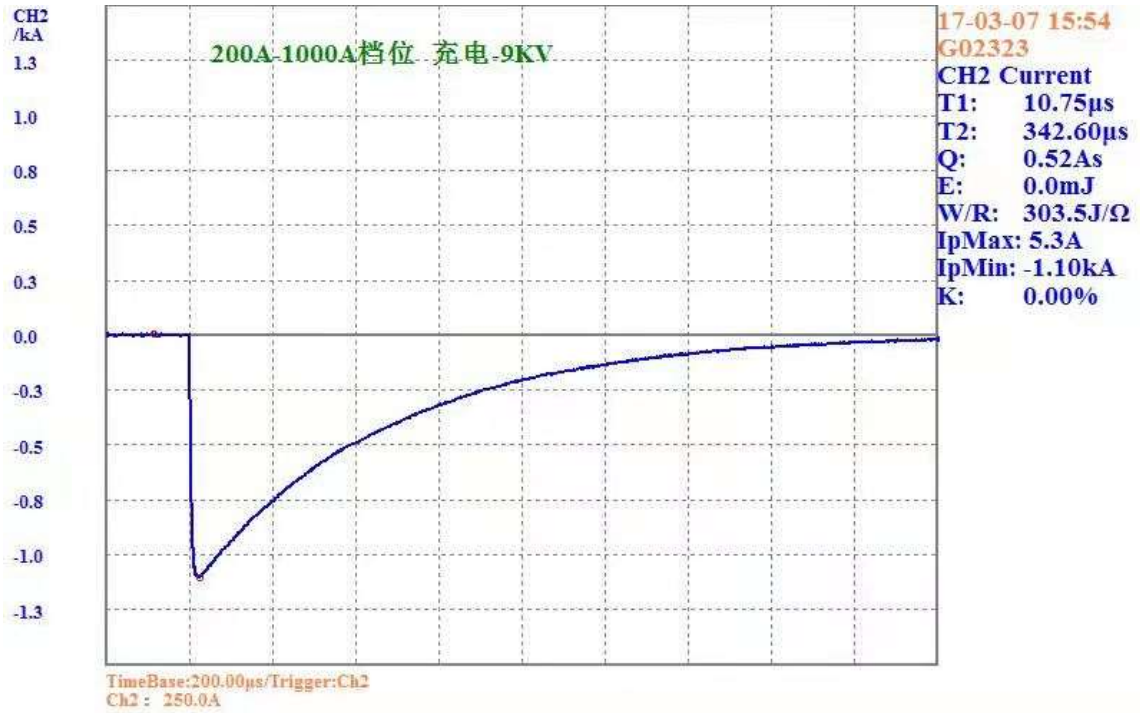
Gap Distance Setting

Pls record the gap distances respectively when the combination wave generator can trigger stably under different charging voltages. Pls input 10 groups data of the charging voltage and the gap distance.

1	voltage(kV)	1	distance(mm)	0.5
2	voltage(kV)	2.5	distance(mm)	1.2
3	voltage(kV)	5	distance(mm)	2.2
4	voltage(kV)	7.5	distance(mm)	3.8
5	voltage(kV)	10	distance(mm)	5
6	voltage(kV)	12.5	distance(mm)	6
7	voltage(kV)	15	distance(mm)	7.5
8	voltage(kV)	17.5	distance(mm)	8
9	voltage(kV)	20	distance(mm)	10
10	voltage(kV)	22	distance(mm)	11

Confirm and Return





10/350µs Impulse Current Waveform