

# SG7601/SG7602

## Digital Recurrent Surge Generator



SG7601/SG7602 Digital Recurrent Surge Generator is the first digital and most big range recurrent surge generator, it is a low voltage equivalent, with one stage only, it has wide range of applications includes the testing of models, the study of voltage distribution in high voltage windings during impulse voltage stresses and the predetermination of the impulse circuit parameters of the test plants.

SG7601/SG7602 Digital Recurrent Surge Generator can be easily, quickly and reliably simulating various pulse waveforms without endangering personnel, through the digital selecting parameters in the impulse circuit.

SG7601/SG7602 Digital Recurrent Surge Generator can easily generate impulse voltage from 0-500V, repetition frequency is 20Hz, the impulse may be observed and evaluated on any oscilloscope by SG7601, observed and evaluated on i built in 14bit / 100Ms/S digital impulse measuring system by SG7602.

SG7601/SG7602 Digital Recurrent Surge Generator is developed based on industry computer, touch screen, window 7, friendly interface.

SG7601 Recurrent Surge Generator also can generate the impulse current if connect to right test object. The

SG7602 include two channels, one for voltage, one for current with shunt. All waveform can be store and analyze and generate report.

### Feature

- ◆ Fine adjustment for all parameters in the major loop, more than 10,000 steps available for front and tail wave resistor, more than 1,000s step available for charging capacitor, load capacitor and inductor;
- ◆ Wide range of parameter adjusting, user can get more range of waveform than any other single products;
- ◆ Most modern design with best platform, industry computer, touch screen, Window 7;
- ◆ 20Hz Repetition frequency
- ◆ Digital Impulse measuring and analyzing system inside, it can easily analyze the impulse parameters instead of manual calculation and analyzing;
- ◆ 14bit high accuracy permits 0.5% voltage vertical accuracy;
- ◆ 0-500V charging voltage range, each step is 1V, 0.3-6uS chopping wave range, each step is 0.1uS;
- ◆ Perfect and strong plastic cover, suitable for onsite use;
- ◆ Reliable performance by 48 hour full voltage non stop test;

The unit is especially suitable for:

- ◆ Investigating the impulse voltage distribution in winding models of machines, transformer, reactors and instrument transformer
- ◆ Investigating the impulse current of arrestor and others
- ◆ Predetermining impulse circuit data, for instance the value of the front resistance of impulse generator, which can be performed by connecting the actual test object
- ◆ Non-destructive testing of windings in dry state and

under various impulse voltage conditions

- ◆ Insulation fault location in windings
- ◆ Investigating transfer characteristics of measuring system
- ◆ Training and experimentation in laboratories of technical colleges and electric technical institutes

### Working Principle

The major loop include the charging capacitor ( $C_1$ ), front wave resistor ( $R_f$ ), tail wave resistor ( $R_t$ ), load capacitor ( $C_2$ ), inductor (L), all above parameters can be digital selected in big range of the value, after right selecting all the value and charging the  $C_1$  capacitor, then trigger, the system can get a impulse waveform.

SG7601/SG7602 Digital Recurrent Surge Generator equip IGBT tunable frequency circuit to make 50Hz/60Hz to 400Hz, equip tunable voltage rectification model to make 0-500V voltage range. Then charging capacitor owned a liner and fast response voltage charging source. One SCR model control the trigger signal, when software send the control signal to SCR, then the major loop will get a impulse waveform.

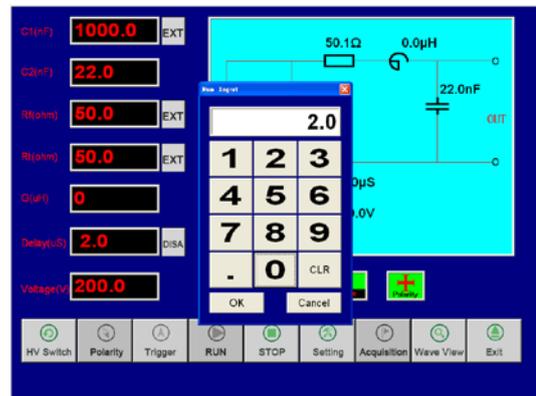
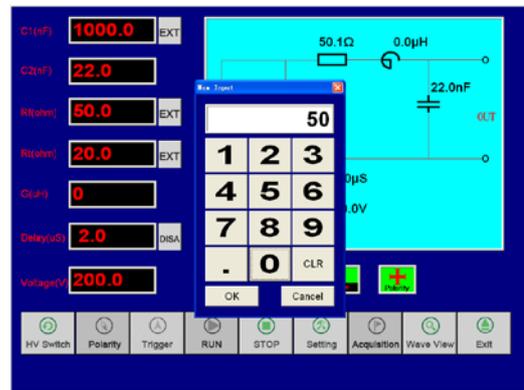
SG7601/SG7602 Digital Recurrent Surge Generator equip a digital chopping wave delay unit, it use modern nS stage response delay electronics elements, chopping range 0.3uS-6uS, each step is 0.1 uS.

SG7602 Digital Recurrent Surge Generator also equip the digital impulse analyzing system, two channels include, one channel use for output voltage measuring, the other channel equip the connector , shunt and cable for current testing.

### User Benefit

**Easy Operation** Ease of use was the mandate to our engineering and design teams. The SG7601/SG7602 digital recurrent surge generator uses the worldwide standard Windows 7 operating system and an intuitive control and display panel to allow even inexperienced operators to learn quickly with minimal training. All value is be selected by main interface, selected value is be

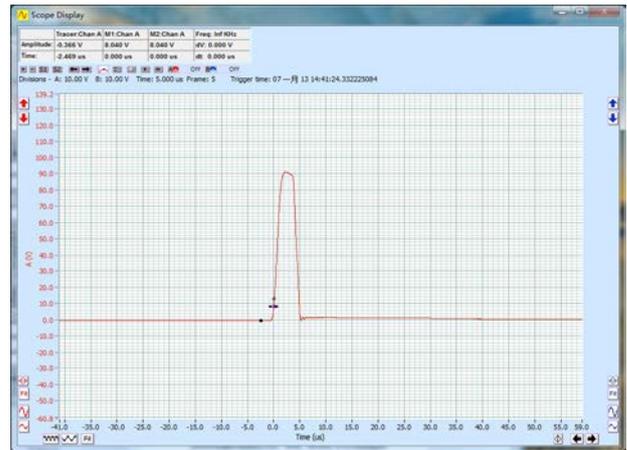
showed in the impulse circuit, easy for knowing by new user.



**Advanced Analysis Capability** Fine adjust all parameters in the major loop, more than 10,000 steps available for charging capacitor ( $C_1$ ), load capacitor ( $C_2$ ) front wave resistor ( $R_f$ ) and tail wave resistor ( $R_t$ ), more than 35 steps available for inductor; Hundred times more choice for parameters and high resolution and accuracy digital analyzer make the advanced analysis be a easy and sample work.

The impulse digital analyzer system even supply time domain and frequency domain analysis. From 0-50Mhz range, user can arbitrary change.

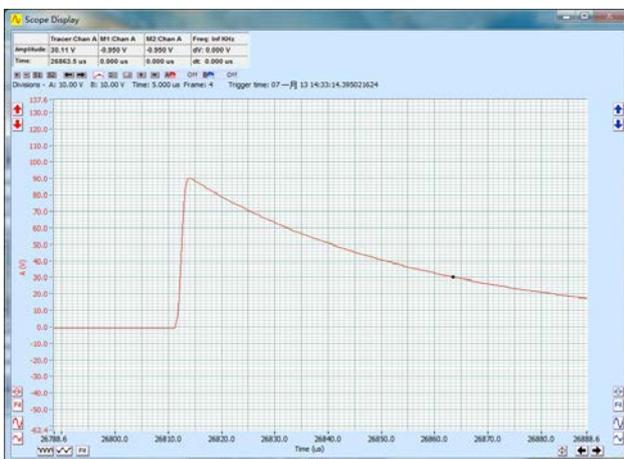
**Flexibility** Movable engineering plastic box design, 10 meters HV cable and crabs as standard accessories., it can be use in the HV and LV lab, also it can be use onsite without any problem, Variety of purposes from HV and LV field usage, like transformer, instrument transformer, cable, switch, research and etc.



Chopping Wave (5us)



LI (1.2/50us)

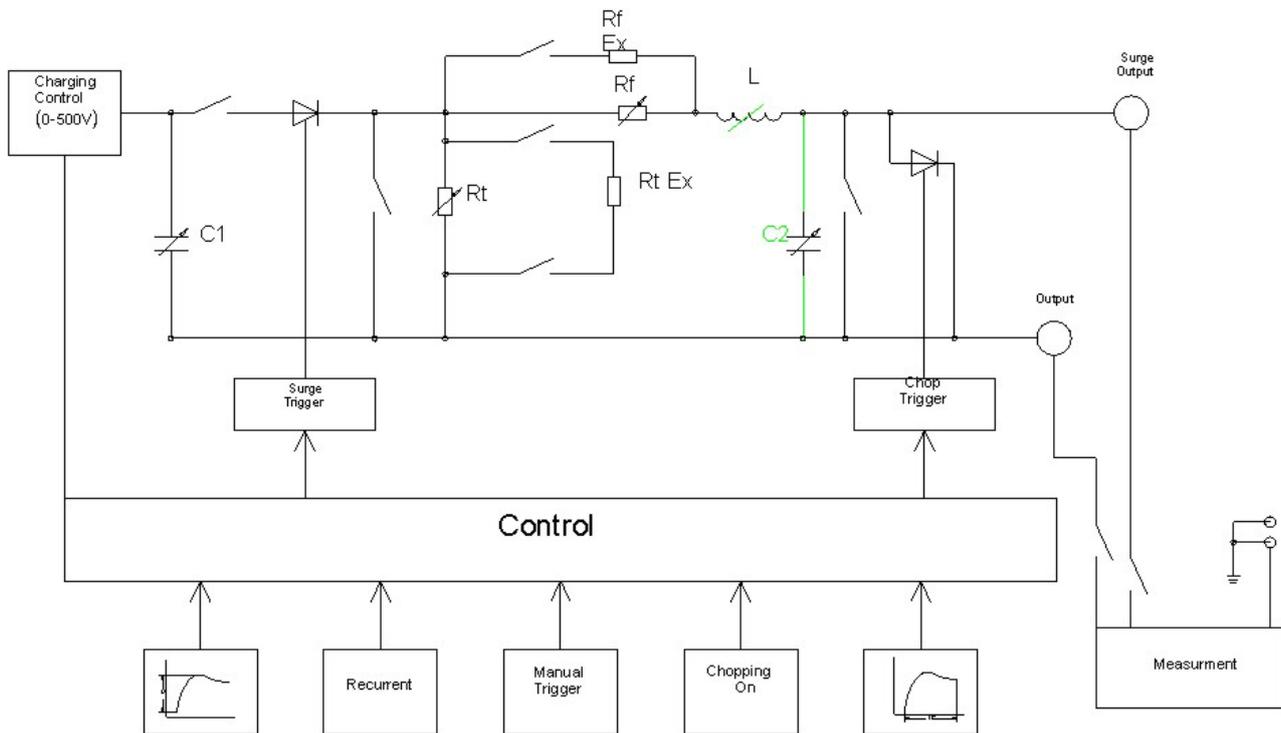


SI(250/2500us)



Compact Design

## Basic Diagram



## SG7601/SG7602 Technical Specifications

### System

Monitor:	TFT 12.1' with Touch Screen
Memory:	1GB or more
Hardware:	500G or more
Operating system:	Window XP or Window 7
Charging Voltage:	0...500V +-1.5%
Chopping delay:	0.3-6uS
Chopping delay Time Step:	<100nS
Chopping delay Time uncertainty:	<5nS
Impulse Capacitance (C1):	3.3.....1000nF Ext
Impulse Capacitance Adjust Step:	1nF
Minimum impulse front time:	0.2uS
Time to half (Impulse shape):	0.3...12000uS 0.3...30000uS Ext
Inductance Selector:	5, 10,15,22,27,32,33, 37,38,43,48,55,60,65,68,70, 73,78,83,90,95,100,101,105,106,111,116,123,128, 133,138.
Load capacitance(C <sub>2</sub> ):	0nF..100nF

Load capacitance adjust step:	0.1nF
Parallel resistor (R <sub>t</sub> ) :	10ohm.....100Kohm
Parallel resistor adjust step:	1ohm (<315ohm)
Conductivity:	10-5S/m (>315ohm)
Serial resistor (R <sub>f</sub> ) :	3.3ohm.....51Kohm
Serial resistor adjust step:	1ohm (<225ohm)
Conductivity:	2*10-5S/m (>225ohm)
Rated voltage C <sub>1</sub> :	0..500V
Rated voltage R <sub>f</sub> :	0..500V
Rated voltage R <sub>t</sub> :	0..500V
Repetition rate:	1Hz (using external Component )
Repetition rate	21Hz (without external Component )

### Operating Conditions

Supply voltage:	70V-270V
Relative Humidity:	10-95%
Temperature range:	10-50°C
<b>Size:</b>	<b>565mm*550mm*230mm</b>
<b>Weight:</b>	<b>16kg</b>

## SG7602 Additional Digital Impulse Analyzing System Specifications

### Input Signal

Connections:	LEMO 75Ω
Input voltage:	1.5V-1000V
Input range selection:	Automatic
Over voltage protection:	2kV
Input impedance:	2MΩ/20pF
Analog bandwidth:	50MHz for each channel
Trigger:	CH1, CH2

### Data Acquisition

Resolution:	14bit
Sampling rate:	100MS/sec max.
Measuring time:	1-9999us
Accuracy:	±0.5% U <sub>pk</sub> ± 2 LSD (14bit)

**For further information please contact:**

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