

Lightning Surge Simulator

# LSS-6230A

- Conforming to IEC61000-4-5 Ed.3 Standard
- Ring wave conforming to ANSI/IEEE C62.45 available
- Max. voltage 6.0kV output focusing on the practical use
- Monitor terminal standard equipped so as for easy waveform pre-checking
- Interlock built-in as the emergency stop function for safety
- Remote control software from PC ready as the option besides the stand-alone operation
- AC/DC CDN standard equipped. Available up to 3-phase AC500V 50A as the option
- CDN for Telecom lines, CDN for interconnection lines, isolation transformer, etc. ready as the option



## Specification

Parameter	Specification			
<b>Common</b>				
Polarity	Positive / Negative			
Interval	(Minimum charging time) ~999 sec. 1 sec. step			
No. of output setting	1~999 times 1 time step			
<b>Surge generating unit</b>				
1.2/50μs-8/20μs Combination waveforms	Voltage surge	Output voltage	0.5~6.0kV ±10%	
		Front time	1.2μs±30%	
		Duration	50μs±20%	
	Current surge	Output current	250~3000A ±10%	
		Front time	8μs±20%	
		Duration	20μs±20%	
Minimum charge time		10 Sec.		
Output impedance		2Ω±10%		
0.5μs-100kHz Ring wave	Voltage surge	Output voltage	0.5~6.0kV ±10%	
		Rise time	0.5μs±0.15μs	
		Frequency	100kHz±20kHz	
	Current surge	2nd peak voltage	40-110% of 1st peak voltage	
		3rd peak voltage	40-80% of 2nd peak voltage	
		4th peak voltage	40-80% of 3rd peak voltage	
	Minimum charge time		5 Sec.	
	Output impedance		12 Ω±3 Ω 30 Ω±8 Ω	
Coupling network	Line - Line : 18μF, Line - PE : 10Ω+9μF, Line - PE simultaneous coupling (L+N-PE) : 9μF/9μF			
Decoupling coil	1.5mH			
AC EUT power capacity	Single phase AC 240V 16A MAX (50/60Hz)			
DC EUT power capacity	DC125V/16A MAX			
Phase angle control	0~360°±10°, Based on set injection / return angle			
<b>Surge generating unit for external CDN</b>				
10/700μs-5/320μs Combination waveforms	Voltage surge	Output voltage	0.5~6.0kV ±10%	
		Front time	10μs±30%	
		Duration	700μs±20%	
	Current surge	Output current	12.5~150A ±10%	
		Front time	5μs±20%	
		Duration	320μs±20%	
Minimum charge time		15 Sec.		
Output impedance		40Ω±10%, 15Ω±10%		
<b>Other</b>				
Voltage monitor	BNC output, 1/1000±10%			
Current monitor	BNC output, 1mV/A±10%			
External communication	RS-232C optical communication			
Power supply	AC100V ~120V±10%, AC200V~240V±10%,50/60Hz Power consumption : Less than 300VA			
Dimension	W430×H515×D500 mm(Projection excluded)			
Mass	Approx. 65kg			

Lightning Surge LSS

**Isolation Transformer**

In order to secure the safety in the operation when LSS-6230A series is used for the test to AC power lines of EUT, an isolation transformer should be inserted and connected in between the power source and the simulator.

It is not anything special but must be compatible with the spec and performance of EUT. If it is difficult to be prepared locally, please contact us so we can quote it.

**CDN for Telecom lines MODEL : LSS-INJ6401TEL**

Adaptable for the test to unshielded symmetrical interconnection lines specified in IEC61000-4-5 Standard

Parameter	Specification
Surge input voltage	6.6kV 10/700 $\mu$ s-5/320 $\mu$ s Combination waveform
EUT power capacity	DC50V 100mA
No. of line	4 lines
Decoupling coil	20mH per phase
Matching resistor	40 $\Omega$ (in 1.2/50 $\mu$ s waveform) 25 $\Omega$ (in 10/700 $\mu$ s waveform)
Dimension / Mass	W297xH262xD250mm Approx. 10kg

**CDN for interconnection lines MODEL : LSS-INJ6401SIG**

Adaptable for the test to interconnection lines specified in IEC61000-4-5 Standard. Arrestor installation possible in between the each line and GND.

Parameter	Specification
Surge input voltage	500V~6,600V
EUT power capacity	DC50V/1A
Max. line number	4 lines
Decoupling coil	20mH per phase
Matching resistor	40 $\Omega$ ±10%
Dimension / Mass	W488xH456xD550mm Approx. 45kg

\* Please contact us if low voltage surge injection is required

**Loop coil MODEL : 01-00057A**

In the combination with LSS-6230A, enable to conduct pulse magnetic field immunity test specified in IEC61000-4-9 Standard

Parameter	Specification
Max. output voltage	1200A
Waveform	6.4/16 $\mu$ A current surge
Coil dimension	1000x1000mm

**CDN for 3-phase EUT MODEL : LSS-CDN6351**

Adaptable for the surge immunity test specified in IEC61000-4-5 Standard to AC power supply lines of EUT whose power supply up to AC500V/50A. The surge injection angle can be set automatically linked with the generator unit. Also, the line symmetrical operation to AC lines is possible.

Parameter	Specification
Coupling surge waveform	1.2/50 $\mu$ s-8/20 $\mu$ s combination waveforms, 0.5 $\mu$ s-100kHz ring wave
Max. coupling surge voltage / current	Up to the value which can be set in LSS-6230
Coupling network	18 $\mu$ F±10% (LINE - LINE)
Correspondent to IEC61000-4-5	10 $\Omega$ +9 $\mu$ F±10% (LINE - PE)
Coupling network	18 $\mu$ F±10% (LINE - LINE, LINE - PE)
ICorrespondent to IEEE/ANSI C62.45	9 $\mu$ F/9 $\mu$ F/9 $\mu$ F/9 $\mu$ F±10% (4 Lines - PE simultaneous injection)
Power supply lines structure for EUT	3-phase : L1/L2/L3/N/PE
EUT power capacity	AC500V/50A MAX 50/60Hz
Decoupling coil	1.5mH
Power supply	AC100V-AC240V ±10% 50Hz / 60Hz
Dimension / Mass	W555xH850xD790 mm(Projection excluded) Approx. 170kg

**Optical USB module MODEL : 07-00022A**

Optical conversion adaptor Used for remote control with PC. 5m of optical fiber cable with USB interface attached.

**EUT Protective Safety Box MODEL : 11-00005A/11-00006A**

Protection box to prevent access to EUT during the test.

Further safety is secured together with the safety protective fence

MODEL	Dimension
11-00005A	W400xD300xH300mm
11-00006A	W600xD400xH350mm

**Terminal Connection Board attached with Multi-Outlet MODEL : 18-00048B**

EUT interface with a 3-pole terminal block and a multi-AC plug receptacles (AC plug receptacles withstand voltage 4.5kV)

**Warning Lamp MODEL : 11-00008A**

The blinking makes the operators or neighbors pay attention to the test processing.

Designs and specifications are subject to be changed without notice.