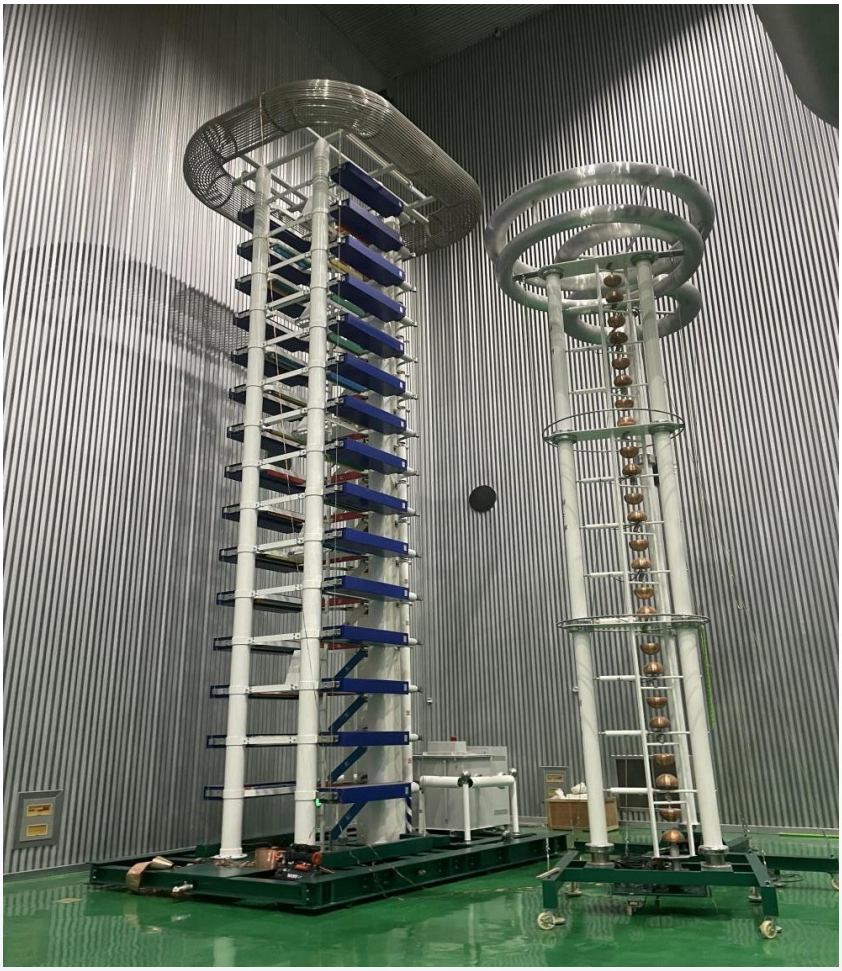
Impulse Voltage Generator System

Lightning Impulse | Chopped Lightning Impulse | Switching Impulse



Impulse voltage test system reference

The Impulse Voltage Generator System provides lightning and switching impulse tests for high-voltage laboratories. It combines impulse generation, waveform shaping, voltage measurement and test control in one complete system. Applications include insulation testing of high-voltage capacitors and voltage dividers.

Functions and Characteristics

The impulse voltage generator can generate corresponding waveforms according to the test requirements of different products. The waveforms meet the requirements of national standards and IEC standards and have passed the ministerial appraisal. The main technical performance is in the leading position in China, reaching the advanced level of similar products in the world.

1. Complete sets of equipment, complete voltage level;
2. The circuit inductance of the impulse voltage generator is small, and the band-resistance filtering measures are taken to generate standard impulse voltage waveforms under large capacity loads, with a large load capacity. Originated in China and used in scientific research and enterprise units;
3. The voltage utilization coefficient is high, the lightning wave and the operation wave are not less than 90% and 70% respectively;
4. The impact body has compact structure, beautiful appearance, convenient wave adjustment, simple operation, good synchronization performance and reliable action;
5. Adopt SCR or LC constant current charging automatic control technology, which has high degree of automation and strong anti-interference ability;
6. The electronic delay adjustable circuit or L-C delay mode is adopted for wave interception delay;
7. Computer measurement and control (optical fiber) system, the software registered by the national copyright, through GB/T and IEC standards evaluation;
8. The main capacitor of the high-grade impulse voltage generator is grounded with patented technology, which can be effectively grounded in a short circuit with a time of ≤2s;
9. For special products, the patented technology can be used for automatic wave head resistance exchange;

10. Miniaturized portable lightning impulse is specially customized for on-site power distribution equipment.
11. In view of customers' lack of space or special needs, our company produces a variety of outdoor products, with performance indicators and waveforms equivalent to indoor products, can be configured according to the actual needs of users.

Main System Components

Impulse generator assembly; DC charging unit; capacitive voltage divider; chopping gap; control and digital measuring systems. A fast resistive divider is available for step response measurement.



DC charging unit



Control and measurement console

Technical Data Reference

Rated Voltage (kV)	Impulse Capacitance (μF)	Stage Capacitance (μF)	Impulse Energy (kJ)	Stage Voltage (kV)	Stage Number	Outline Dimension(mm)			Weight (kg)
						L	W	H	
±200	1	2	20	±100	2	1440	1110	1580	270
±300	0.33	1	15		3	1700	1300	1640	420
	0.5	1.5	22.5						535
	0.67	2	30						575
±400	0.25	1	20		4			2040	465
	0.375	1.5	30						485
	0.5	2	40						69
±600	0.17	1	30		6				615
	0.25	1.5	45						635
	0.33	2	60						920
±600	0.125	0.5	22.5	±150	4	3810	1600	2775	2300
	0.25	1	45						2500
±750	0.1	0.5	28.13		5			3215	2550
	0.2	1	56.26						2800
±900	0.083	0.5	33.75		6			3655	2800
	0.167	1	67.5						3100
±1050	0.714	0.5	39.36		7			4095	3050
	0.143	1	78.75						3400
±1200	0.063	0.5	45		8			4535	3300
	0.125	1	90						3700
±1350	0.056	0.5	50.625		9			4975	3540
	0.111	1	101.25						3990
±1500	0.05	0.5	56.25		10			5415	3780
	0.1	1	112.5						4280
±1600	0.063	0.5	80	±200	8	5220	3000	6630	4230
	0.094	0.75	120						4390
	0.125	1	160						4710
	0.188	1.5	240						5510
±1800	0.056	0.5	90		9			7280	4540
	0.083	0.75	135						4720
	0.111	1	180						5080
	0.167	1.5	270						5980
±2200	0.045	0.5	110		11			8580	5190
	0.068	0.75	165						5410
	0.091	1	220						5850
	0.136	1.5	330						6950
±2400	0.042	0.5	120		12			9230	5530

	0.063	0.75	180						5770
	0.083	1	240						6250
	0.125	1.5	360						7450
±2800	0.056	0.5	80	±200	14	5220	3000	10650	8590
	0.054	0.75	120						8870
	0.071	1	160						9430
	0.107	1.5	240						10830
±3000	0.033	0.5	90		15			11300	8980
	0.05	0.75	135						9280
	0.067	1	180						9880
	0.100	1.5	270						11380
±3200	0.031	0.5	110		16			11950	9340
	0.047	0.75	165						9660
	0.063	1	220						10300
	0.094	1.5	330						11900
±3600	0.028	0.5	120	±200 (optional ±300)	18			13250	10105
	0.042	0.75	180						10465
	0.057	1	240						11185
	0.083	1.5	360						12985
±4000	0.025	0.5	200		20			14550	10835
	0.038	0.75	300						11235
	0.05	1	400						12035
	0.075	1.5	600						14035
±4200	0.024	0.5	210		21			15200	11220
	0.036	0.75	315						11640
	0.048	1	420						12480
	0.071	1.5	630						14580
±4800	0.021	0.5	240		24			17150	12350
	0.031	0.75	360						12830
	0.042	1	480						13790
	0.063	1.5	720						16190
±5400	0.028	0.5	405	±300	18	6600	6400	19140	19440
	0.056	1	810						21120
	0.083	1.5	1215						25800
±6000	0.025	0.5	450		20			21000	21600
	0.05	1	900						23800
	0.075	1.5	1350						29000
±7200	0.021	0.5	540		24			24720	25920
	0.042	1	1080						29160
	0.063	1.5	1620						35400
±9000	0.033	1	1350	±300	30	10000	9000	30300	40000

Remarks: 1. Parameters can be specified by users. 2. Weight and dimensions are for reference only and may be adjusted per user requirements.

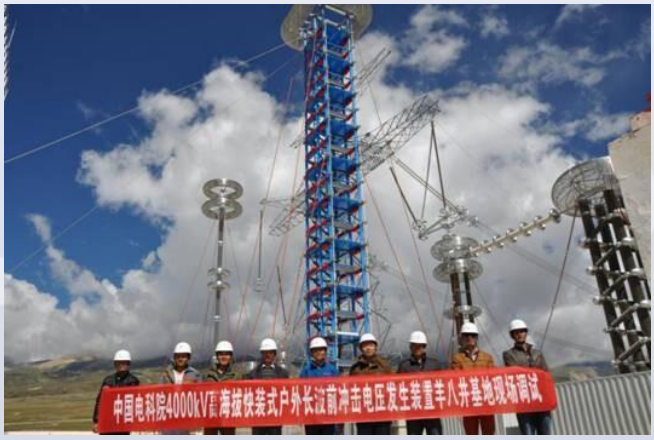
Reference Case:



Xi'an High Voltage Apparatus Research Institute, Changzhou Base — **6000kV/900kJ** Multipurpose Outdoor Impulse Test System (Combined Tests, Impulse Voltage Tests, and Long-Front Switching Impulse Tests)



Shanxi Electric Power Research Institute — **4800kV/960kJ** Impulse Voltage Generator, Also Used for Impulse Current Testing of Complete 550kV Impulse Arresters



China Electric Power Research Institute — **4000kV/400kJ** Special-Waveform Impulse Voltage Generator for Operation at 4,600 m Altitude

Operating Conditions

Indoor and outdoor configurations are available. The following conditions apply to the indoor reference system: ambient temperature −5 to +45 °C; altitude ≤1000 m; relative humidity ≤90%; grounding resistance <0.5 Ω.

Final test voltage, waveform performance and system configuration depend on the test object and agreed technical requirements.

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