

# Impulse Generators and Measurement Systems

## 100 kV to 800 kV



### Testing Applications

Designed to generate impulse voltages that simulate lightning strokes and switching surges as defined by IEC, ANSI/IEEE, and other national standards on:

- Distribution transformers
- Small power transformers
- Cables (type tests)
- Arrestors (impulse current tests)
- Motors / generators
- Insulators
- Bushings
- GIS
- Instrument transformers

- **100 kV per stage design**
- Complies with **IEC 60060** and **IEEE** for **indoor use**



## Lightning Impulse Generator

The complete test system consists of a charging rectifier, impulse stages 100 kV each up to 800 kV, an impulse voltage divider and control system. Impulse Test Sets are also available as current impulse generators used primarily for surge arrester testing.

## Design Features

- Remote control operation via fiber optic network from an external PC/laptop computer
- According to IEC 61083-1/2 for measurement and analysis of the impulse waveform of lightning and switching, impulse voltages during HV tests (peak value, front-time, time-to-half-value, time-to-chopping), menu oriented control, and data visualization program
- 12- or 14-bit resolution suitable for comparison on records during transformer tests
- DKD-Calibration suitable as Reference Standard and Reference Measuring System for full and chopped waves. All variants upgradable to 4-channels with 200 MS/s and 14-bit
- Control output for calibrator
- WIN-TRAS remote control system

## Resistors

Resistors built into the impulse circuit are of a wire wound design and are equipped with a ruggedized heat shrink sleeve providing a long service life. The resistors use quick connections to allow fast reconfigurations. The tapped series resistor allows adjustments to better match test object inductance. The basic system includes a set of resistors for lightning impulse voltages.

## Standard Ratings

Stages	Voltage	Energy	Stages	Voltage	Energy
1	100 kV	5 kJ	4	400 kV	20 kJ
2	200 kV	10 kJ	6	600 kV	30 kJ
3	300 kV	15 kJ	8	800 kV	40 kJ



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## Earthing/Ground System

A motorized grounding system which shorts all stages is standard.

## Environmental Conditions

- 10-40°C, indoor/outdoor in fair weather
- Humidity <95% non-condensing
- Altitude <3300 ft (1000 meters)

## Optional Glaninger Circuit

The Glaninger Circuit can be used for testing very low inductances, such as the low voltage windings of transformers. The Glaninger inductance (LG) is connected in parallel to the series resistor. The inductance has a high impedance (ZL) during this rapid rise at the impulse front. This means only the series resistors effective during impulse rise time. During slow decay of the impulse the inductance has a low impedance that means the impedance of the parallel connection of LG and RS is determined by the impedance of the Glaninger inductance. The result is less damping in the resonant circuit (impulse capacitance / Glaninger inductance / test inductance) and hence an increased time to half value.

## Optional Chopping Sphere Gap

For triggering a waveform, front and tail chopping, a sphere gap is available in motorized or manual version.

## Optional Control Desk

The impulse generator controls and measurement system are contained in two 19" metal enclosures. Both can be mounted into an optional control desk (as shown in picture on page 1). An EMI proof enclosure is also available.

## Optional Shunts

Shielded shunts for a variety of applications are available upon request.

**NOTE:** This product is manufactured and supplied by Phenix Technologies' and valued partners to offer complete innovative testing solutions.



ISO  
9001:2008  
Compliant