



SGDA

Impulse Voltage Test Systems
200 kV – 3'000 kV

Datasheet



HAEFELY

Current and voltage – our passion

General Description

SGΔA impulse test systems can be used to generate impulse voltages simulating lightning strokes and switching surges. The total charging voltage ranges from 10 kV to 3'000 kV with a per-stage energy of 5 or 10 kJ. Due to its unique Δ-structure, the SGDA impulse generator are perfectly suited for transportation and on-site erection. The system has all our experience acquired, in building Impulse Generators since 1932, behind it.

A number of optional additional circuits and components can be included.

The electronic measurement and control components are designed and manufactured in-house in an ISO 9001 certified factory. Our many years of experience in dealing with electromagnetic compatibility of electronic devices in high voltage test bays provides the requisite expertise. A trouble-free operation and a long service life are thereby ensured.

The impulse test system operates under this control system which charges the impulse generator through the charging unit.

Charging time and charging voltage can be selected by the operator.

SGΔ generators are based on MARX multiplier circuits. The stages in the impulse generator are connected and charged in parallel via the charging resistors.

Once the selected charging voltage has been reached, a trigger pulse initiates firing of the first spark-gap of the impulse generator. The resulting over-voltage triggers the successive stages. As all the spark-gaps fire, the stages which are in series now, add up to the charging voltage to reach the test voltage.

An impulse voltage divider reduces the impulse voltage to a value that the measuring and recording instruments can use.

The major impulse circuit elements such as capacitors and resistors are arranged in an optimum manner to simultaneously satisfy the two major requirements. smallest possible internal inductance and operating convenience.

Features

- Sleek and flexible design
- Charging voltage from 10 kV up to 3'000 kV.
- Energy per stage 5 kJ or 10 kJ.
- Unique grounding system which operates even power is off
- Spark Gaps within Delta structure with air flow
- Small Inductance

Advantages

- ✓ Small Footprint
- ✓ Wide range, covers a lot of varied DUT
- ✓ Covers Transformers as well.
- ✓ Heightened Safety
- ✓ Protection from Dust and avoids premature firing.
- ✓ Ideal for Transformer tests

Applications

Applications covered include Impulse Voltage testing according to IEC, ANSI/IEEE as well as other national standards on varied Devices.

- Power transformers
- Instrument transformers
- Cables (type tests)
- Arresters (impulse current tests)
- Bushings
- GIS and air-insulated breakers
- Insulators

Components of Impulse Voltage Test system

- Impulse Generator stack
- Charging Rectifier
- Impulse Voltage Divider
- Control System
- Measuring System

Accessories and Options

- Air cushion system
- Top electrodes
- Shunts
- Termination resistors
- Chopping Gaps
- Additional circuits for transformer testing
- Additional circuits for Impulse Current generation
- External series overshoot circuit
- Matching and isolating transformers
- Weatherproof enclosures



Famed Delta Structure

Fiberglass plates form the famed Delta structure. The structure encloses the spark gaps and holds the impulse capacitors too. The resistors holders are affixed to these plates on the outside

Each Module holds either 2 or 3 capacitors.

Expansion of stages in future is extremely easy. Just involves adding necessary number of stages. Above 26 stages a change of base frame may be necessary for structural integrity

SSG ZUS Impulse Current Generation Accessory

With additional resistors and wave shaping inductances are necessary for generating impulse currents up to 20 kA with an impulse voltage generator. Exponential impulse currents acc. IEC 60099-4 can be generated on test objects having very high residual voltages.



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