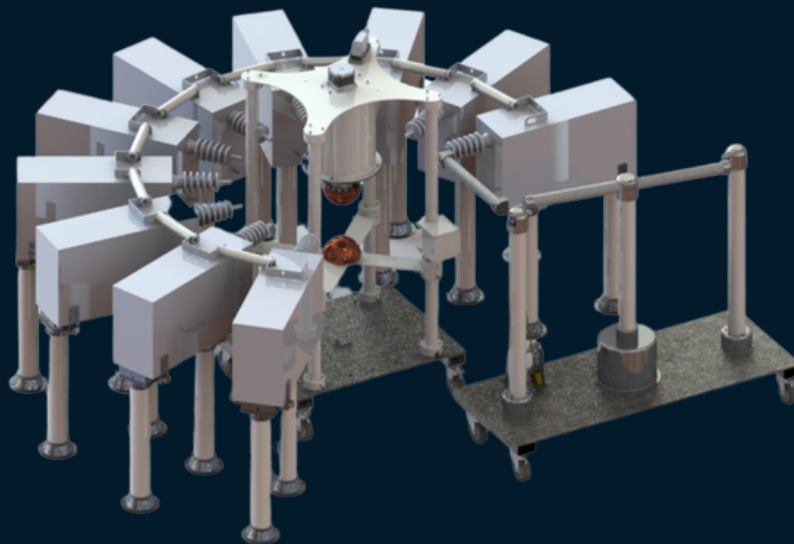


GENERATOR

COMBINED WAVE IMPULSE GENERATOR

Standards

IEC 60060, IEC 60099-4, IEC 62305-1, IEC 61643-11 and NBR 6939



COMBINED WAVE IMPULSE GENERATOR

Description

The HVEX solution for this scenario is current impulse generators. HVEX current impulse generators are designed for testing residential, industrial, transmission, and distribution equipment covering low, medium, and high voltage ranges. They are particularly efficient in evaluating the direct or indirect effects caused by lightning discharges.

Applications include:

- Surge arresters
- Varistors
- EMP (Electromagnetic Pulse) and NEMP (Nuclear Electromagnetic Pulse) tests
- Circuit breakers
- SPDs (Surge Protection Devices)
- Etc.

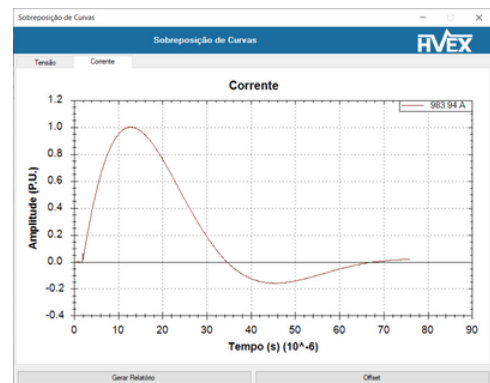
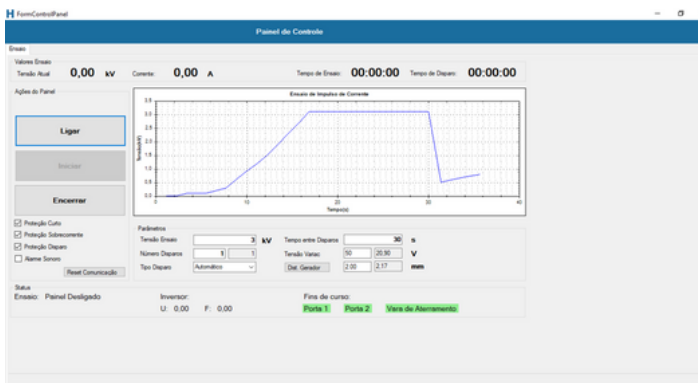
HVEX impulsive current testing systems can generate up to 200kA, with residual voltage of up to 100kV, and comply with standards such as IEC 60060, IEC 60099-4, IEC 62305-1, IEC 61643-11, and NBR 6939 for various applications.

The structure is provided with a compact ring-type design, reactor configuration allowing for the generation of long-duration and exponential current impulses, and the design can be customized to meet the testing requirements of each client.

Operation

1. **Transformer:** Raises the voltage level to the desired magnitude suitable for the testing application.
2. **Rectifier:** Converts the alternating current (AC) from the transformer into direct current (DC), providing a continuous power supply.
3. **Power Capacitors:** These capacitors accumulate energy from the rectifier, forming an energy storage circuit. They store electrical energy temporarily and release it rapidly when needed.
4. **Control System:** The entire process is computerized and controlled to ensure efficient operation. Parameters such as voltage amplitude, pulse duration, and spark gap distances are adjusted as per testing requirements.
5. **Surge Generation:** The stored energy in the capacitors is discharged through appropriate connections and spark gaps, generating a high-energy impulse or surge current. This surge is applied to the test object to simulate real-world transient events.
6. **Measurement and Analysis:** The response of the test object is measured and analyzed. The resulting waveform, including rise time and decay time, provides insights into the performance and resilience of the equipment under test against voltage surges.

This surge generator system plays a crucial role in ensuring the reliability and safety of electrical equipment by subjecting them to realistic operating conditions and assessing their response to transient disturbances.



Technical Specifications

Standards	IEC 60060, IEC 60099-4, IEC 62305-1, IEC 61643-11, NBR 6939
Discharge current	Up to 200kA, according to customer application
Residual voltage	Up to 200 kV, according to customer application
Current impulses	8 × 20 μs (IEC 60099-4 standard for atmospheric impulse tests). Alternatively, other formats can be obtained upon customer request to HVEX.
Arrangement	Ring
Capacitance of each load unit	1 to 10μF, being able to total 200 uF
Voltage divider	Purely resistive, capacitive or mixed
Measurement uncertainty	< 1%, voltage < 1%, current
Communication protocol	TCP/IP, Modbus
Weight	200kg to 2Ton
Sampling for graphical analysis	6,58 – 79,67 kV (L-F), accuracy 10% (depending on the cable insulation)
Environmental conditions	
Altitude	< 1000 m
Umidity	< 95%
Temperature of operation	0 °C to 40 °C

We provide solutions for improvement of electrical energy generation, transmission and distribution efficiency, quality and reliability. With a highly specialized and experienced team in research, development and innovation, HVEX develops tailor-made solutions for Brazilian and foreign markets. Wide range of products with solutions focused on signal transduction, measurement, monitoring and protection.



Boosting the Innovation



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