

High-power Testing Facilities: Impulse Current Generator

Background

At our High-power Testing Laboratory, to evaluate the safety and performance of electric power equipment and apparatus, we employ short-circuit tests and short-time withstand current tests of circuit breakers, etc., along with AC and DC arc resistance tests of insulator sets, cables, and transformers. An impulse current generator is an important piece of equipment at our High-power Testing Laboratory. A

lightning voltage or current impulse generated by an impulse generator can be super-imposed on an AC wave for the short-circuit test for the performance evaluation of arresters or apparatus for the lightning protection of distribution lines. We also upgraded the current impulse generator to increase the available current for tests simulating lightning strikes with high energy.

Outline

This renewed impulse current generator will be used for the AC/impulse tests and high-current impulse resistance tests of single arresters.

Especially, it can generate high-peak current impulse, which is necessary for the tests of new arresters.

Specifications

Rated voltage: 800 kV; maximum charging energy: 240 kJ

Impulse current waveform: (front time/time to half value [μ s]) 8 ($\pm 10\%$)/20 ($\pm 10\%$)

Maximum impulse current: ± 25 kA (in case of an arrester: rated voltage 98 kV), ± 50 kA (in case of an arrester: rated voltage 8.4 kV)

Impulse voltage waveform: (front time/time to half value [μ s]) 1.2 ($\pm 30\%$)/50 ($\pm 20\%$)

Maximum impulse voltage: ± 800 kV

Structure: All-weather type (outside installation), main capacitors separated with gaps

Measurement equipment: Resistor voltage divider for lightning impulse: 1,000 kV; coaxial shunt: 200 kA

[Installed location and date]

Yokosuka area/July 2011

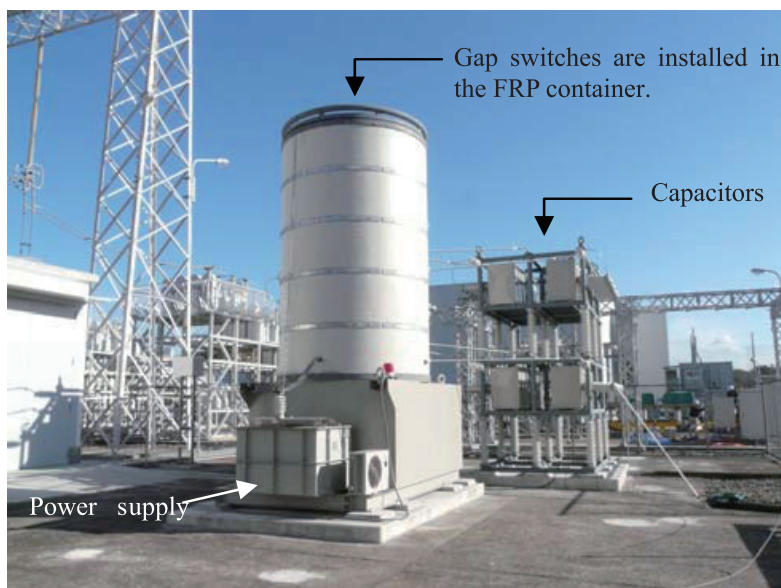


Photo: Impulse current generator