CDYM Series

Mobile Impulse Voltage Test System, M Structure, 1200-3000kV

CDYM series Mobile Impulse Voltage Test System is designed as M structure, the whole system is be designed to be located in a 20/30/40ft container, suitable for frequent transportation, it can be used to generate impulse voltage what simulate lightning strokes (LI: 1.2/50us) and switching surges (SI: 250/2500us). The total charging voltage range is from 1200kV-3000kV with stage energy of 10 or 20kJ. Applications covered include testing according to IEC, ANSI/IEEE/GB as well as other national standards.

CDYM series Impulse Voltage Test System allow one well trained engineer to operate the whole system due to its automation design. Many automation design are be used, such as three separate hydraulic system and one motorized roof system. One diesel generator included in the system, it allows the system operating without external power supply.

CDYM series Impulse Voltage Test System allow to be modified for carrying out a variety of special tests such as on transformer, impulse current testing of surge arrestors and even components of wind generators or air craft as well as EMP testing of electrical equipment.

CDYM series Impulse Voltage Test System use a series of innovative technology to make the impulse generator such as air pressure gap and switch, so the results this impulse generator is the most reliable efficiency and automation model we ever built.

Applications:
- Shunt reactors
- Power transformers
- Distribution transformer
- Instrument transformers
- Cables (type tests)
- Bushings
- Arresters (impulse current tests)
- Insulators
- GIS and air-insulated breakers
- R&D

Testing Waveform Parameter:
- Lightning Impulse (1.2/50us)
- Switching Impulse (250/2500us)
- Lightning Current Impulse (8/20us)
- Lightning Chopping

Main Feature:
- Total charging voltage from 1200kV to 3000kV;
- Compact design, fit the whole system into container;
- Low requirement for the grounding resistor;
- High automation, one person can operate whole system;
- No external power supply request, one diesel generator include;
- No climate influence for the stability of the sphere gap, well filtered air fill into the isolated air tube;
- High efficiency of the LI/SI up to 95%;
- Air pressure switch instead of charging resistor;
- Computerized and microprocessor base control system;
- 12bit or 14bit, 100Ms/s Digital impulse analyzer system are available;
- Unique system grounding device together with first stage traditional grounding device;
- Glaninger circuit and overshoot compensation device are available;
- Short reconfiguration times by utilizing handy plug in or out resistors and connections;
- Double contact surface than original, guarantee better contact and more stable T₁ and T₂;

The circuit of the impulse generators is a Marx multiplier circuit. The impulse capacitors, arranged in the stages of the generator are charged with DC voltages up to 200 kV against earth potential and in order to generate impulses, connected in series by spark gaps. For the adjustment of the front time and time to half value of the test impulse, the generator stages comprise front resistors and tail resistors. A short discharge loop guarantees low internal inductances and smooth voltage shape.

Impulse Voltage Generator
(the simplest equivalent single stage circuit)

C₀ \[\rightarrow\] \(R_s\) \[\rightarrow\] \(R_p\) \[\rightarrow\] \(C_L\)

- Impulse Capacitance
- Spark Gap
- Parallel Resistance
- Series Resistance
- Load (Test Object)

Components of the M Structure Impulse Test System:
- Impulse Generator
- DC Charging Device
- Weak Damped Voltage Divider
- Digital Impulse Control System
- Digital Impulse Measuring & Analyzer System
- 20ft/30ft/40ft Container
- Air pressure station
- Dassel generator

Options:
- Air Pressure Variable Gaps
- External Overshoot Compensation Device
- Glaninger Circuit
- Chopping Gaps
- Isolation Transformer
- Additional Circuits for Impulse Current Generation
- Rogowski Winding / Shunt

Theory:
The circuit of the impulse generators is a Marx multiplier circuit. The impulse capacitors, arranged in the stages of
3000kV Mobile Impulse Generator (Chopping Gap)

1400kV Mobile Impulse Generator (Chopping Gap)
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