

Automatic 12 kV C & Tan delta tester

Capacitance & Dissipation Factor Tester : CDF-6000

UDEY[®]

Introduction: Failure of high voltage power apparatus costs lost time, lost revenue, un expected maintenance and repair costs. These could have been minimized with a optimum test program. UDEY CDF-6000 provides the most accurate test results for power apparatus. CDF-6000 incorporates breakthrough technology and design that gives accurate and reliable results, again and again.

The advantages of CDF-6000:

- Eliminates substation signal interference (FFT and digital filtering technology)
- Gives its own clean (un-corrupt) test signal for the most reliable and repeatable results
- Automated setup eliminates errors-Fully automatic typically 30 seconds
- Prints results automatically on built-in printer
- Performs excitation current tests on transformers

Features

- Maximum output of 12 kV/200 mA
- RS 232 interface
- Can re call stored 99 tests results.
- Automatic calendar and time running.

Safety Features

- High Voltage protection
- Input Voltage protection
- Grounded protection
- No voltage overshoot

Description: UDEY CDF-6000 is a new generation, fully automatic, 12 kV capacitance and dissipation factor test set designed for insulation and quality assessment of high voltage power apparatus in the field, floor shop or laboratory.

The entire test is done automatically and quickly. Operator enters the test parameters and UDEY CDF-6000 takes over; powers up the voltage, balances the bridge, takes the readings, ramps down to zero and displays the results on the LCD screen. Prints results through its built-in printer.

A key feature of the CDF-6000 is its advanced interference suppression circuit based on the principle of line frequency modulation. The operator sets the CDF-6000 to take measurements at frequencies above and below the line test frequency to cancel out the effects of interference caused by the high voltage lines. Accurate measurements are made in even in energized switch yards up to 765 kV.



Single unit construction: Built in

- HV Bridge,
- HV power supply
- Standard Capacitor
- Printer

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SPECIFICATIONS:

Input: 180V ~ 270V AC, 1-phase, 50/60Hz

Output*:

Test voltage: 0.5 ~ 12 kV, user-selectable

The output test voltage tolerance of the CDF-6000 is $\pm 1\%$ of the selected test voltage and remains stable along the duration of the test, un-affected by line or input voltage fluctuations.

Test current: 200 mA maximum

* If higher than 12 kV test voltage, higher current or extended test capacitance is desired, the CDF-6000 allows interface with an external power supply and external reference capacitor while using its bridge circuit to take measurements and output results.

Accuracy:

Capacitance: $\pm 1\%$ of reading + 1pF

Tan δ : $\pm 1\%$ of reading + .00040

Voltage: $\pm 1\%$ of reading.

Interference Supression:

Ratio of interference current to specimen current: 2: 1
Line frequency modulation technique either by:

- Fixed Frequency measurement: 45,50,55,60,65Hz; user-selectable or
- Dual frequency measurement with automatic averaging: 45/55Hz, 55/65Hz, 47.5/52.5Hz; user-selectable

Measurement modes

UST (Ungrounded specimen test)

This test is made when the specimen can be insulated from ground. The test is often used to reduce the effect of stray capacitance losses to ground and to reduce the effect of interference pickup from nearby energized apparatus.

Typical test specimen include the primary to secondary winding insulation in high voltage transformers and measurements on HV bushings with a capacitance tap.

GST (Grounded specimen test)

This is the most frequent used test connection and involves all insulation between the high voltage conductor and ground. Typical test specimens include transformer windings to tank and core, circuit breaker assemblies, coils of rotating machines, etc.

GST-g (Grounded specimen test with guard)

This test is used to separate the total values of the GST into separate parts for better analysis. Often this test is used with the GST to confirm the test readings made using the UST

Test Duration

Typically 30 Seconds, fully automatic testing.

The unit automatically ramps up to set test voltage, takes measurement, ramps down voltage to zero and prints out test result.

Measuring Range:

Test capacitance range @ 50 Hz / 60Hz.

- Internal power supply 200 mA max.
3pF ~ 0.05 μ F @ 12kV
60pF ~ 1 μ F @ 0.5kV
- External power supply, 5A max.
3pF ~ 1.25 μ F@12kV
- Resolution: 0.001pF, 4 digits

Tan δ range: δ ~ 100%, resolution .001%

Voltage: 0~12kV

Current: 10 μ A ~ 5A

Also displays the phase angle, frequency, watts loss, insulation power factor or tan delta, resistance (in the case of resistive specimens), inductance and quality factor (in the case of inductive specimens).

Built-in Printer

Thermal printer

Typical print out:

| | | |
|---|---------------|---------|
| CDF-6000 | 2006/11/07 | 15:12 |
| U ICn 5-Hz 10 Kv | | |
| Cx: 2.560nf | Tg δ : | 0.074% |
| U: 10.06kV | I: | 8.088mA |
| δ : 89.957° | P: | 60.77mW |
| F: 49.97Hz | t: | 27° C |
| CDF-6000 C&DF TEST SET UDEY M/s. UDEYRAJ & SONS www.udeyraj.com | | |

Operator Safety And Protection

The CDF-6000 is equipped with self-diagnostic procedures, protection against short circuits, open and poor ground connection, input over-voltage and audible sound, flashing light indicators during test.

Environment

- Operating temperature : 0 to 60°C
- Storage temperature: -20°C to 60°C
- Relative humidity: <90% non-condensing

Accessories Supplied

- 12 meters of HV cable with hook and clip
- 2 sets of Cx and Cn cables with clips
- Guard cable with clips
- Grounding cable and power cord
- Paper roll, fuses in a cable bag

Dimension: 460mm L x 350mm W x 340mm H

Weight: • Unit: 30 kg • Cable: 3.5 kg

Specification subject to change due to constant up gradation



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