

SG2008

Precision Capacitance and Dissipation Bridge



SG2008 Automatic 12kV Capacitance & Dissipation Factor Test Set is designed to measure dissipation ($\tan\delta$) and capacitance (C) in heavy electromagnetic interference environment such as in power plants or substations. Also it can be used in laboratory for high accurate test such as High Voltage (EHV) class Bushings, Windings of transformer (1/2/3 windings), shunt reactors, Current Transformer, Capacitor Voltage transformer(CVT), grading capacitors of Circuit Breakers, Surge Arrester and other electrical equipments. The test set is all-in-one structure: including precision digital bridge, 12kV/200mA frequency conversion power unit, reference capacitor (CN), and other electronic circuits. An external power supply can expand the test range. True portability is realized by the lightweight. Simple usage is realized by the full automation. High performance is realized by the digital process.

Main Features

Interference Suppression

The SG2008 has advanced interference suppression circuit based on the special shielding device and digital filter technique, the ratio of interference current to specimen current is 2:1(200%). The interference is eliminated by digital filter. This method is proved much more reliable than traditional phase-shift and phase reversal methods.

High Accuracy

In the internal digital bridge, input signals are converted to digital signal by A/D converters, and then processed by a SCM. Most of the tasks are done by software including self-calibrating. Reference signal is given by a three terminal high accuracy standard capacitor. All the input resistance is less than 2 Ohm, so the attached capacitance of connection cable is negligible. Not only for on-the-spot test, can it also be used in laboratory for high accuracy test, such as oil dissipation factor test. Normally the accuracy of dissipation factor under no-interference environment is better than 0.00010.

Safe Protection

Output Protection: If the specimen is short circuit, broken down or the currents are enlarged abnormally, the internal high voltage will shut off very quickly without voltage surge at the output.

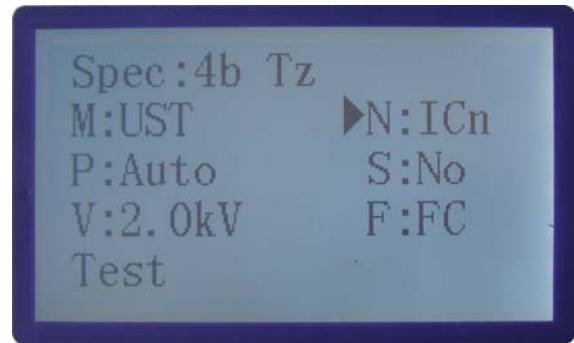
Input Protection: If power supply is unstable or broken suddenly, or connected to 380V mistakenly, it will go to protected status.

Poor Grounded Protection: If the case of the set being at dangerous voltage due to not well grounded, it will reject to work.

Fault Protection: Two power switch, Multi-step to confirm a start, Sound and light alarm, voltage/current monitor.

CVT: There are four limits: High Voltage and High Current, Low Voltage and High Current. It can only reach to the minimum limit. If GST or UST mode is selected, the meter shut off the output for CVT test.

No Voltage Overshoot: The output voltage may exceed the preset value when test large capacitance. The set can trace the voltage and adjust to the preset value.



Software Interface

Multiple Functions

(1) Basic test modes:

- Ungrounded Specimen Test (UST) with or without low side guard.
- Grounded Specimen Test (GST) with or without high side guard.
- Grounded Specimen Test with low side Guard (GST-g).
- Capacitance Voltage Transformer (CVT) test function is optional.
- All above test with internal high voltage power supply need no assistant equipment.

(2) Use an external power supply:

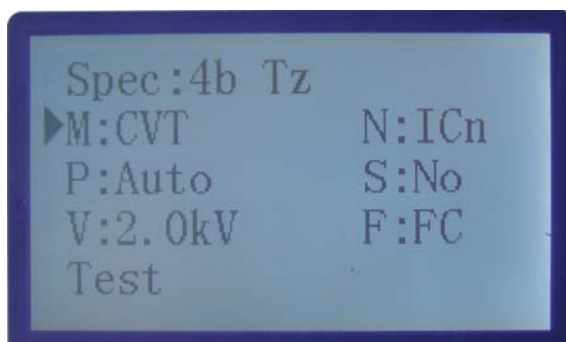
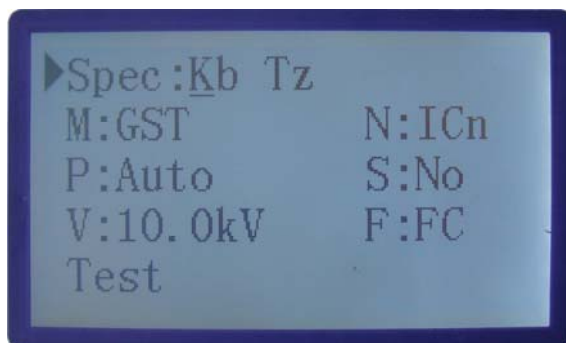
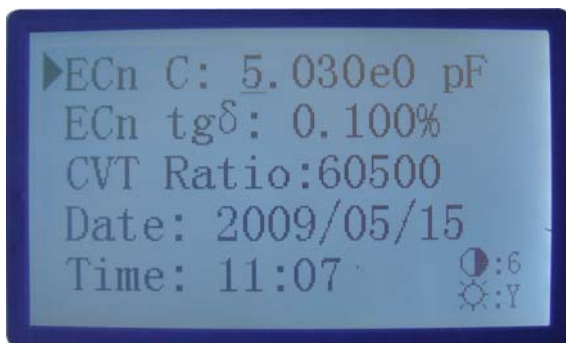
An external power supply under 12kV can be used to enlarge the specimen current to 1A. This may be needed for large capacitance test such as generator.

(3) Test at higher voltage:

Using an external high voltage power supply over 12kV and an external standard capacitor at that voltage level, an apparatus can be tested in UST mode at its rated working voltage.

(4) All test work will be done automatically after start the set:

Powers up the voltage, testing, and ramps down voltage to zero displays the results and print them out.



Technical Specifications (SG2008-12kV)

System

Interference: Ratio of interference current to specimen current is 2:1(200%)

Test Time: 25s typical (may vary in different test mode)

Printer: Thermal printer

Communication Port: RS-232

Dissipation Factor $\tan\delta$

Range: No limit

Resolution: 0.001%

Accuracy: $\pm \text{reading} \times 1\% + 0.0004$

Capacitance

Range: Internal HV 3pF~50000pF/12kV,
60pF~1 μ F/0.5kV

Resolution: 0.001pF, 4 digitals

Accuracy: $\pm (\text{reading} \times 1\% + 1\text{pF})$

Test Voltage, Current, Frequency

Range: Internal HV 0.5~12kV/200mA (max)

Accuracy: $\pm (\text{reading} \times 1\% + 10\text{V})$

Resolution: 1V

Input current range: 10 μ A~5A

CVT (Capacitor voltage transformer) Test Mode:

Output Voltage: 3~50V

Output Current: 3~30A

Internal HV Frequency: 45, 50, 55, 60, 65(single)
45/55Hz, 55/65Hz, 47.5/52.5(double)

External HV Frequency: 30Hz-70Hz

CVT Divider Ratio

Range: 1~99999

Accuracy: $\pm \text{reading} \times 1\%$

Phase

Range: 0~359.999

Accuracy: ± 0.020

Environmental Conditions

Operating Temperature: -10 $^{\circ}$ C~50 $^{\circ}$ C

Storage Temperature: -20 $^{\circ}$ C~60 $^{\circ}$ C

Humidity: <90% non-condensing

Weight and Dimension

Dimensions (cm): 46 (L) \times 35 (W) \times 34 (H)

Weight Main unit: 28kg cable: 3.5kg

Power Supply

Input Voltage: 180V~270VAC

Frequency: 50Hz/60 Hz \pm 1%

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