

Model DF902A 12KV Capacitance & Dissipation Factor Test Set



Description:

Model DF902A Automatic 12kV Capacitance & Dissipation Factor Test Set is designed to measure dissipation(Dielectric Loss factor/DF/tg δ) or power factor(PF/cos ϕ) in heavy electromagnetic interference environment such as in power plants or substations.

Together with one special oil cell/cup(for option), oil dissipation also can be measured.

Its main specimens: Power transformer, Distribution transformer, Instrument transformer, Bushings, circuit breakers, Surge arrestors, capacitors, Motors and Generators.

Its test capabilities: Dielectric Loss factor/DF/tg δ , Power factor(PF/cos ϕ),Capacitance,etc.

Product Features:

- Fully automatic, easy to use;
- All-in-one structure, lightweight, rugged & compact, true portability;
- High noise suppression based on the frequency conversion and digital filter technique, its test accuracy can be ensured even the ratio of interference current to specimen current is 2:1(200%);
- Model DF902A has multiple functions:UST / GST /GSTg, all these functions with its main unit;
- Designed for various work environments, in the field, in the laboratory;
- High speed A/D converters, processed by a DSP. self-calibrating, accuracy standard capacitor, ensure Model DF902A high accuracy;
- All the input resistance is less than 2 Ohm, the attached capacitance of connection cable is negligible;
- Using an external high voltage power supplies over 12kV or 5A;
- 100 groups of data storage. RS232 is available; Micro-Printer inside;
- Ultra long life cycle, average 10 years.

Specifications:

Multi-Protections:

- Output protection against the specimen is short circuit, broken down;
- Input protection against power supply unstable, broken suddenly,380V supply;
- Grounded protection. The instrument can't be operated if its grounding is not reliable;
- Fault protection by confirmation, alarm and all parameters displayed;
- Voltage Overshoot Protection.

The results:

Type of specimen	Results	Type of specimen
Capacitive	Cx, tgδ, U, I, φ, P, F, t	If tgδ >1 or Q <1, they will be replaced by Rx. For inductor Rx is always considered as serial model.
Inductive	Lx, Q, U, I, φ, P, F, t	
Resistive	Cx(Lx), Rx, U, I, φ, P, F, t	

The results for different type of specimen (C/L/R)

Cx: Capacitance [1μF=1000nF / 1nF=1000pF]

tgδ: Dissipation Factor [1%=0.01]

Lx: Inductance [1MH=1000KH / 1kH=1000H]

Q: Quality Factor

Rx: Resistance [1MΩ=1000kΩ / 1kΩ=1000Ω]

U: Test voltage [1kV=1000V / 1V=1000mV]

I: Specimen current [1A=1000mA / 1mA=1000μA]

φ: Phase that current in advance to voltage [°]

P: Dissipation power [1kW=1000W / 1W=1000mW]

F: Frequency [Hz], double frequency mode is the averaged frequency

t: Temperature [°C], internal sensor may be influenced by internal heat, all data is at the current temperature, without calibration.



Accessories included

Accuracy:

Cx ± (reading×1%+1pF)

DF tgδ ± (reading×1%+0.00040)

PF cosφ ± (reading×1%+0.00040)

Capacitance Range:

Internal HV 3pF~60000pF / 12kV, 60pF~1uF/0.5kV

External HV 3pF~0.3uF/12kV

Resolution 0.001pF, 4 digitals

tgδ Range:

0-100%, Resolution 0.001% (C/L/R specimen is automatic recognized)

Input current range:

10μA~5A

Internal HV:

0.5~12kV / 200mA (max)

Accuracy: ± (1.5×reading×1%+10V)

Control mode: Rise or fall smoothly

Frequency: 45Hz, 50Hz, 55Hz, 60Hz, 65Hz single frequency

49Hz/51Hz, 59Hz/61Hz dual frequency

External HV:

UST: 5A max, GST: 12kV/5A max, 38-72Hz

Oil Cup for option:

2000V, 90 °C, 15ml

Test Time:

30s typical (may vary in different test mode)

Power Supply:

180V~270V,50Hz/60Hz±1%

(Single phase power supply or generator)

Display:

128×64 dot matrix

Printer:

Thermal printer

Communication Port:

RS-232

Interference:

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

Operating Temperature:

-10 °C ~60 °C

Storage Temperature:

-20 °C ~60 °C

Humidity:

<90% non-condensing

Dimensions:

460mm(L)×350mm(W)×340mm(H),Weight: Main unit: 23kg , cable: 3.5kg

Option for Oil Dielectric Dissipation Test:

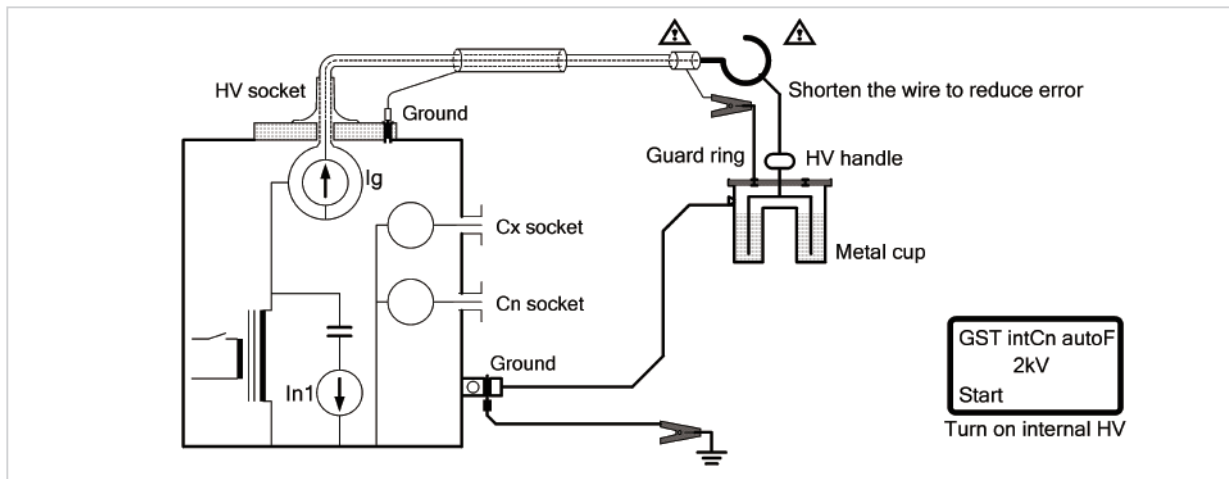
Together with oil test vessel and its temperature controller, DF902A could be used to test insulation oil dielectric dissipation $\text{tg}\delta$ and Relative dielectric constant.

Main Features:

- Typical a three-electrode system oil vessel provides guarding against surface leakage;
- Temperature controlled by PID logic mode;
- Numeric keypad input temperature parameter;
- Grating isolation for input and output;
- Internal hardware self-diagnosis



oil cup



Connection to oil cup

Main Specifications:

Oil test vessel

Gap between the electrodes: 2mm
 Capacitance for empty oil vessel: $60 \pm 5 \text{ pf}$
 Rated voltage: 2000V, Main Frequency
 Dielectric Loss factor/ $\text{tg}\delta$ for empty oil vessel $< 510^{-5}$
 Oil vessel volume: about 40 cm^3
 Electrode material: Stainless Steel
 Size: 148mm(Dia.) \times 90mm
 Weight: 8.5Kg

Oil test vessel temperature controller

Temperature Test Range:
 $0 \sim 199.9 \text{ }^\circ\text{C}$ Accuracy: $\pm 1 + 0.1 \text{ }^\circ\text{C}$
 Temperature controlled Range:
 Ambient temperature $\sim 199.9 \text{ }^\circ\text{C}$ Accuracy: $\pm 1 + 0.1 \text{ }^\circ\text{C}$
 Heating Power:
 800W, and heating time < 60 minutes since Ambient temperature to appointed temperature
 Working Condition:
 Ambient temperature: $0 \sim 40 \text{ }^\circ\text{C}$; RH: $30 \sim 85\%$; Power Input: $220\text{V} \pm 10\%$, 50Hz