

## TD.100

### Product Overview

Digital Automatic Dielectric Dissipation Factor Tester is a high-precision instrument, which can be applied to measure dielectric loss angle and Volume Resistivity of insulating oil etc. It is integrated by oil cup for dielectric loss, temperature-control equipment, temperature sensor, test-bridge for dielectric loss, AC trial electrical source, standard capacitor, high resistance meter and DC high-voltage power etc. The most advanced heating mode of high frequency induction is applied to the heating part of this instrument, which has the advantage of non-contact of oil cup and heating unit, homogeneous heating, quick velocity and convenient control etc. AC-DC-AC conversion mode is applied to AC trial electrical source so that the problem of how to measure correctly under the fluctuation of voltage and frequency can be avoided. Even when the electric generator is working, the instrument can operate correctly. The inner standard capacitor is SF6 three-pole inflate capacitor, whose dielectric loss and capacitance is not influenced by environmental temperature and dampness etc. In this way, the accuracy of the instrument is guaranteed and not compromised by lengthy operating times.



### Key Features:

#### > A. Heating

The instrument has a high frequency induction stove for heating which is controlled by the CPU collecting temperature of the sensor in the oil cup. The heating process adopt the Switching Power control and PWM control. When the temperature of the sample is too low, the instrument selects the high-power heating mode, so it can shorter sample's heating time. After the temperature gets close to the pre-set point the instrument selects low-power PWM heating mode for even heating cycle.

#### > B. Temperature Control

When the real temperature gets close to the setting point, the temperature control CPU selects low-power PWM heating mode, and the sample temperature is calculated by PID, and by getting the optimal PWM control duty cycle, this restricts the temperature to the range of setting temperature error.

#### > C. Dielectric Loss Measuring

The testing voltage is applied to the internal standard capacitor and voltage terminal simultaneously. After signals of these two lines are PGA controlled by the measuring circuit, the circuit sends the digital signal to DSP (digital signal processor) by using synchronous AD sampling. After the DSP carries out processing of filter, FFT, it figure out parameters of  $\tan\delta$ ,  $C \times \epsilon$ , etc, and send to the main control CPU.

#### > D. Volume Resistance Measuring

The direct high testing current is applied to the voltage terminal in the oil cup. It produces a faint current signal, the signal is magnified and AD sampled by the measuring circuit, and is then sent to the DSP (digital signal processor). DSP processes the signal and figures out parameters of  $R_x \rho$ , etc. Then sends the signal to the main control CPU.

Condition of Use	-5°C~40°C RH<80%
Power Source	AC 220V±10% Without Frequency Limit
AC High Voltage Output	400V~2200V ±2% Every 100V 50VA
DC High Voltage Output	200V~600V ±2%
Temperature Control Induction Stove	Maximal Power 500W
Temperature Control Range	<100°C
Temperature Measuring Error	±0.5°C
Control Temperature Error	0.1°C
Control Temperature Time	Room Temperature 90°C <20min
Measuring Range	tgδ Without Limit Cx 15PF-300PF Rx 10M-20T
Resolution	tgδ 0.001% Cx 0.01pF Rx 0.01
Precision	Δ tgδ : ±(Reading*0.5%+0.020%) Δ Cx : ±(Reading*0.5%+0.5PF) Δ Rx : ±Reading * 10%
Relative Dielectric Loss Constant	εr Calculated Automatically
Volume Resistivity	ρ Calculated Automatically
Dimension	450 (L) ×310 (W) ×360 (H)
Weight	21Kg

### Standard Accessories:

➤ Mainframe of the Instrument	1
➤ Oil Cup	1
➤ Special testing temperature sensing line (white/short/ends joint)	1
➤ Special data acquisition line (black/short/ends joint)	1
➤ Send the special 2 KV high pressure test line (black/long/ends clip)	1
➤ Send the special test line (black/long/end clip/end joint)	1
➤ Special measuring cup (50 ml)	1
➤ AC220V Power Wire	1
➤ Specification	1
➤ Certification	1
➤ Fuse Cartridge, Print Paper	Spare

