

PARTIAL DISCHARGE TESTER DAC-PD-7

Partial Discharge measurement is non-destructive tests having higher detection sensitivity than withstanding or high resistance tests. DAC-PD-7 is ideal for quantitative diagnosis at production and inspection of electrical parts, such as EV motor, Photo-coupler, IGBT, and insulation materials etc.

Features

- **All-IN-ONE UNIT.**
The tester contains 3000V high voltage source, coupling capacitor, detector and calibrator.
- **EASY TO USE.** No need cumbersome wirings.
- Calibration is automatically done while voltages are being applied.
- Automatic gain adjustment happens in designated intervals. No need to switch measurement ranges.
- Measurement of the maximum discharge pulse Q-max is possible in each cycle.
- Measurement can be conducted while observing discharge waveform. The applied voltage profile can be observed simultaneously.
- USB interface is attached. Automatic measurement with attached software is possible.

Test Materials

- Solar Battery Panel Back Sheet.
- Photo-coupler
- IGBT
- EV Motor
- Lithium Ion Battery
- Relay, Circuit Board
- High Frequency Transformer
- Insulation Materials

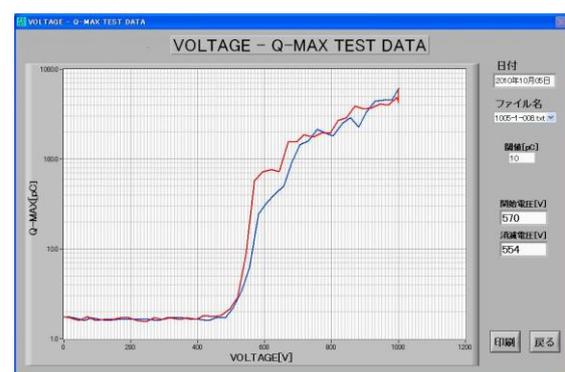
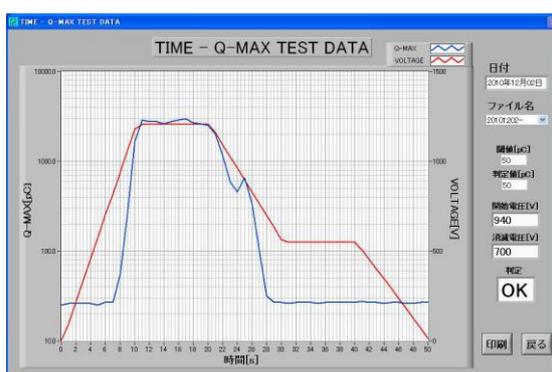


Conformity

- **IEC 60270** High-voltage test techniques – Partial discharge measurements
- **IEC 60664-1** Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests
- **IEC 61730-2** Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing

PC Software

- PD tests according to the applicable international standard (IEC 60270, 60664-1, 61730-2) are available with attached PC Software.
- Measurement results are plotted continuously and NO or GO judgment comes soon after the test completes.
- Measured data are saved in CSV and the archives are possible.



Specifications

| | |
|--|---|
| Input Voltage | AC100V±10% 50/60Hz |
| Output Voltage | AC 0~3000V |
| Voltage Ramp Rate | 25V/S, 50V/S |
| PD Resolution | 0.01pC (Partial discharge in device <1pC at AC3000V) |
| Frequency | 50Hz, 60Hz |
| Waveform | Sine wave (not depend on waveform of Input Power) |
| Distortion of waveform | <3% |
| Fluctuation of Voltage | <1% |
| Maximum Load Current | 10mA |
| Maximum Capacitance Load | 5000pF |
| Voltage Accuracy | ±(1%+10digit) of readings |
| Voltage Setting Range | 0 – 3000V in 1V Steps |
| Gain | 0~80dB |
| Range | 1000pC, 10000pC, 100000pC |
| Response Occurrence Frequency | 10~9000PPS (Rate) |
| Calibrator Charge | 100pC, 1000pC |
| Calibration Pulse Injection Capacitor | 50pF |
| Calibration Pulse Voltage | 2V, 20V |
| Calibration Pulse Generation Frequency | 50PPS |
| Internal Coupling Capacitor | 1000pF |
| Interface | USB |
| Size | 430x380x200(WxDxH) Weight 15kg |
| Software | Attached |
| Option | Shield Case |

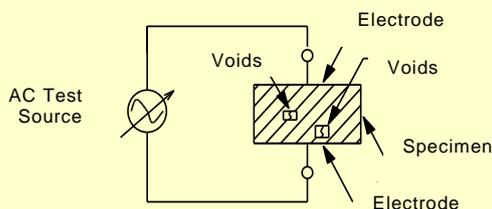
What is partial discharge?

In insulators, there are voids (impurities) like air bubbles and impurities.

Insulators and voids have different dielectric constants, therefore when an alternating current is applied to this insulator, voltage applied to voids (impurities) become larger than on perfect insulators.

In general, dielectric constant of voids (impurities) is lower than insulators, thus voltage applied to voids (impurities) becomes higher and the voids (impurities) shorts.

However, the insulator itself does not short. Partial shortening of voids (impurities) lead to small movement in charges, and this is called local discharge or partial discharge.



Points

1. Partial discharge in insulators occurs in voids (impurities) with low insulating strength.
2. Dielectric constant of impurities and voids are lower than that of good insulators around it, so the electric field concentrates on the impurity, and local insulator breakdown becomes easier to happen.
3. The insulator strength of voids depends on the type of gas in the void, gas pressure and void dimension.
5. Partial discharge precedes insulator breakdown.
6. Partial discharge is described by the maximum discharged charge (Q-max pC)

2014/7/18