# HT7051

**Professional insulation meter up to 5kVDC**



## 1. ELECTRICAL SPECIFICATION

Uncertainty is indicated as ± (% rdgs + no. of dgt) at 23°C ± 5°C, con relative humidity <80%HR

### DC/AC TRMS VOLTAGE

| Range | Resolution | Uncertainty | Overload protection |
|---|---|---|---|
| 10 ÷ 660V | 1V | ±(2%rdg+2dgt) | CAT IV 600 to ground |

### INSULATION RESISTANCE

| Range | Test Voltage | Resolution | Uncertainty (*) |
|---|---|---|---|
| 0.01MΩ ÷ 0.19MΩ | ≥ 100V DC | ≤1%rdg | ±(5%rdg + 7dgt) |
| 0.20MΩ ÷ 199GΩ | | | ±(5%rdg.+3dgt) if $Rmis \leq \frac{Test\ Voltage}{5nA}$<br>±(20%rdg.+3dgt) if $Rmis > \frac{Test\ Voltage}{5nA}$ |
| 0.20MΩ ÷ 499GΩ | ≥ 250V DC | | |
| 0.20MΩ ÷ 999GΩ | ≥ 500V DC | | |
| 0.20MΩ ÷ 1.99TΩ | ≥ 1000V DC | | |
| 0.20MΩ ÷ 4.99TΩ | ≥ 2500V DC | | |
| 0.20MΩ ÷ 9.99TΩ | 5000V DC | | |

(*) Load Capacitance < 1nF

### GENERATED TEST VOLTAGE (compliance to IEC/EN61557-2)

| Test mode | Nominal test voltage | Uncertainty |
|---|---|---|
| FIX | 100V,250V,500V,1kV, 2.5kV, 5kV | -0%, +10% +15V |
| AJUSTABLE | 100 ÷ 1kV in steps of 25V | |
| | 1kV ÷ 5kV in steps of 50V | |
| RAMP | 100 ÷ 1kV in steps of 25V | |
| | 1kV ÷ 5kV in steps of 50V | |

### TEST CURRENT

| Test Voltage | Test current |
|---|---|
| 100 ÷ 5000V | 1mA ≤ Test Current ≤ 3mA (**) |

(**) Test current automatically controlled.

### TEST TIME

| Setting Range | Resolution |
|---|---|
| 5s – 99min 59s | 1s |

### CAPACITANCE

| Range | Resolution | Resistance Load | Test Voltage (Vn) | Uncertainty |
|---|---|---|---|---|
| 1nF ÷ 999nF | 1nF | ≥ 5MΩ | Vn ≤ 5kV | ±(10%rdg+5dgt) |
| 1.00µF ÷ 5.00µF | 0.01µF | | | |
| 1nF ÷ 999nF | 1nF | | Vn ≤ 2.5kV | |
| 1.00µF ÷ 9.99µF | 0.01µF | | | |
| 10.0µF ÷ 19.9µF | 0.1µF | | | |
| 1nF ÷ 999nF | 1nF | | Vn ≤ 1kV | |
| 1.00µF ÷ 9.99µF | 0.01µF | | | |
| 10.0µF ÷ 49.9µF | 0.1µF | | | |

Capacitor charge time (OV→ 5000V): < 3s x 1µF
Capacitor discharge time (5000V→ 25V): < 5s x 1µF

## LEAKAGE CURRENT

| Range | Resolution | Uncertainty |
|---|---|---|
| 1nA ÷ 99.9nA | 0.1nA | ±(7%rdg+3dgt) if $Rmis \leq \frac{Test\,Voltage}{5nA}$<br>±(22%rdg+3dgt) if $Rmis > \frac{Test\,Voltage}{5nA}$ |
| 100nA ÷ 999nA | 1nA | |
| 1.00µA ÷ 9.99µA | 0.01µA | |
| 10.0µA ÷ 9.99µA | 0.1µA | |
| 100µA ÷ 999µA | 1µA | |
| 1.00mA ÷ 2.5mA | 0.01mA | |

## P.I (Polarization Index) – D.A.R (Dielectric Absorption Ratio)

| Range | Resolution | Uncertainty |
|---|---|---|
| 0.01 ÷ 9.99 | 0.01 | ±(5%rdg+3dgt) if $Rmis \leq \frac{Test\,Voltage}{5nA}$<br>±(20%rdg+3dgt) if $Rmis > \frac{Test\,Voltage}{5nA}$ |

(*) Load Capacitance < 1nF

# 2. GENERAL CHARACTERISTICS

## DISPLAY, MEMORY, SERIAL INTERFACE

- Backlight LCD with three simultaneous readings:
  Group 1 (main) → Insulation Resistance, Leakage Current, PI, DAR, Capacitance
  Group 2 → Test voltage (nominal and generated)
  Group 3 → Test Time
- Bargraph: 32 segments
- Low battery indications
- Memory: 700 test
- Communication interface: RS232 optoinsulated

## POWER SUPPLY:

- Internal battery charger, power supply: 220-240V 50/60Hz, 20VA
- Internal NiMH rechargeable battery
- Protection fuse on power supply: T 200mA/250V, Ir: 1.5kA
- Low battery indication:  symbol at display
- Battery life: >1000 Test @ 5kV on 5MΩ (test time: 5s, delay between two test: 25s) according to IEC/EN61557-2. (par. 6.7)
- AutoPowerOFF: after 5min since last operation

## ENVIRONMENT:

| | |
|---|---|
| • Ref. Temperature: | 23°C ± 5°C |
| • Working temperature: | 0° ÷ 40°C |
| • Maximum relative humidity: | < 80%UR |
| • Storage temperature: | -10 ÷ 60°C |
| • Storage humidity: | < 80%UR |

## MECHANICAL DATA:

| | |
|---|---|
| • Dimensions: | 360(L) x 310(W) x 195(H) mm<br>14.2'' (L) x 12.2''(W) x 7.7''(H) |
| • Weight: | about 3.5kg<br>about 7.8lv |

## GUIDELINES

| | |
|---|---|
| Instrument's safety | IEC/EN61010-1, IEC/EN61557-1, IEC/EN61557-2 |
| Technical documentatiion : | IEC/EN61187 |
| Accessories safety : | IEC/EN61010-031 |
| Insulation: | Double insulation |
| Type of Protection: | 2 |
| Mechanical protection: | IP40 (open case), IP53 (closed case) |
| Over voltage category: | CAT IV 600V to ground, max 600V between inputs |
| Maximum altitude | max altitude 2000m |
| Patented certification: | TÜV protocol conformity |

**This instrument complies with the requirements of the European Low Voltage Directives 2006/95/EEC (LVD) and EMC 2004/108/EEC**