

# Ziegler

Redefine Innovative Metering

## Technical Datasheet

### ZIT 106

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10kV Digital Insulation Tester

# ZIT 106

**ZIT 106** is designed to perform at power utilities where induction field is very high. Its high noise immunity and user selectable digital filters makes it most robust and reliable instrument with user selectable test voltages.

Also it is used for testing the electrical insulation of cables, motors, generators, transformers, etc. at power generation plants, utilities, distribution.

Its advance features like Bluetooth connectivity, audio read out, touch screen TFT color display makes it never before user friendly. It can store the data on its inbuilt memory with real time stamp. Data can be transferred to computer or mobile phone memory for future analysis purpose.

## Product Features

- Selectable Test Voltage up to 10000 V : Test voltages can be set to any desired value from 100V to 10000V
- High Insulation resistance measurement : Insulation resistance measurement from 50k $\Omega$  to 20T $\Omega$  for 10kV test voltage
- Noise rejection - 8mA : High Noise immunity allows accurate measurement under HT lines
- Polarization index (PI) testing is an extension of the insulation resistance test and is designed to check specific issues such as moisture and insulation deterioration
- Dielectric Absorption Ratio : DAR measurement is a diagnostic test similar to the Polarization Index (PI), but DAR takes the ratio of the Insulation Resistance usually measured at 30 sec and 1 min (other time settings are possible)
- Dielectric Discharge (DD) Test is a diagnostic insulation test that allows aging and deterioration of insulation to be assessed
- Step Voltage Test is designed as a controlled over-voltage or proof test to provide an additional evaluation of the insulation system integrity
- The Ramp Test is performed with a slowly rising voltage
- User selectable software filter can be used depending on noise levels. This help in accurate reading in noisy environment
- Capacitance Measurement : During Di-electric Discharge Test, Capacitance can be measured from 1nF to 50uF
- Depending on insulation resistance limit the user can be alarmed about the quality of insulation
- Insulation Resistance can be displayed over the time in graphical form



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- Bluetooth 2.0 & 4.0 Class II and electrically isolated USB 2.0 communication
  - It has data logging and monitoring software for window system and an interactive mobile application for android and iOS
  - Burn Mode for uninterrupted insulation testing to find the breakdown region and Breakdown mode will stop generation of voltage on detection of high current
  - It has internal datalogging feature. It can log upto 2000 reading with customer information and time stamp
  - Audio Read-Out - Audible test result on completion of test for awkward locations
  - Rechargeable Battery - Li-Ion 3 Cell Battery with charging current of 1A
  - Selectable test time - We can set the test time to any desired test time from 15sec to 99 min 59 sec
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- Selectable short circuit current 1.2mA, 3mA and 6mA
  - User selectable digital filters
  - Noise Rejection 8 mA
  - Operates on rechargeable Li-ion battery and Mains as well
  - Bluetooth connectivity for data logging
  - Touch screen TFT colour display
  - Audio Read-out
  - Test voltage can be selected in steps of 10V from 100V to 1000V & in steps of 25V from 1000V to 10000V
  - Measurement of DC and AC voltages from 20V ~ 600V
  - Three programmable timers
  - Insulation leakage current measurement
  - PI, DAR, DD, Step voltage & Ramp Test

Specification		
Nominal Voltage	Maximum Resistance	Intrinsic Error
250V	50GΩ	5% ± 1D
	500GΩ	20% ± 1D
500V	100GΩ	5% ± 1D
	1TΩ	20% ± 1D
1000V	200GΩ	5% ± 1D
	2TΩ	20% ± 1D
2500V	500GΩ	5% ± 1D
	5TΩ	20% ± 1D
5000V	1TΩ	5% ± 1D
	10TΩ	20% ± 1D
10000V	2TΩ	5% ± 1D
	20TΩ	20% ± 1D

- Test voltage accuracy : +7% ± 10V
- Direct and Alternating Voltage Measurement" wiht bullet

Measuring range	Frequency	Intrinsic error
20V-600V AC DC	45 Hz-500Hz	3%+10D

- Capacitance Measurement :  
1nF to 50uF; Accuracy ±10% ±5 nF (upto 5kV)  
1nF to 25uF; Accuracy ±10% ±5 nF (above 5kV)
- Insulation Leakage Current Measurement :  
0.01nA to 6mA; Accuracy ±5% ±0.2 nA
- Guard terminal :  
2% error guarding 500 kΩ leakage, 100 MΩ load
- Timer Range for IR test :  
Time: 15s ~ 99 min 59 sec with three programmable timers  
Tests: IR(t),DAR,DD,PI,Step Voltage, Ramp voltage

- Ambient Conditions :
  - Operating Temperature -20 °C ... +50 °C
  - Storage Temperature -20 °C ... +70 °C
  - Relative Humidity max. 90%  
(condensation must be avoided)
  - Elevation up to 2000m
  - Protection IP 67 with closed case  
IP 52 IP 67 with closed case

Applicable Standards	
Standard	Norms
IEC 61010-1	Safety regulations for electrical measurement, control, regulation and lab devices
IEC 61557	Measuring and monitoring facilities for testing the electrical safety in lines with nominal voltages up to AC1000V and DC1500V
PART-1	General
PART-2	Insulation resistance measuring devices

- Reference Conditions :
  - Ambient Temperature + 23 °C + 2K
  - Relative Humidity 45 ... 55%
  - Measured Quantity 50Hz ± 10Hz
  - Frequency (for voltage measurements)
  - Line Voltage Waveform Sine wave
  - Battery Voltage 11.1V ± 1%
  - Operating position Horizontal
  - Power Supply Voltage 230V ± 15%, 50/60 Hz  
(Mains)
- Power Supply (Battery) :
  - Battery 14.8V ,7.8Ah Li-ion Battery
  - Battery service life 4 Hours continuous testing at 100MΩ
  - Battery charging time 7 Hrs
- Power Supply (Mains) :
  - Nominal Power (Mains) 230V AC ±15%, 50/60 Hz
- Electromagnetic Compatibility (EMC) : IEC61326 - 1

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- Immunity :  
IEC 61000-4-2 : 8 KV atmosphere discharge  
4 KV contact discharge  
IEC 61000-4-3 : 3 V/m
- Electrical Safety :  
Overvoltage Category                      600V CAT IV  
Test Voltage                                    7.4kV~  
Pollution degree                              2
- Mechanical Design :  
Dimensions (L x W x H)                      360mm x 310mm x 195mm  
Weight    approx 5kg

## Accessories

- Standard Scope of Supply :
  - 1 In built Li-ion rechargeable battery
  - 1 Operating instructions
  - 1 Power cord
  - 1 USB cable for communication and software  
(with USB and bluetooth communication interface)
- Test lead options (one to be selected) :
  - Test lead set with 3m test leads with crocodile clips (+ve, -ve & Guard lead)
  - Test lead set with 3m test leads (+ve, -ve & Guard lead) with 3 clamps with Large jaw opening
  - Test lead set with 10m test leads (+ve, -ve & Guard lead) with 3 clamps with Large jaw opening
  - Test lead set with 15m test leads (+ve, -ve & Guard lead) with 3 clamps with Large jaw opening

## Ordering Information

DT28-2N000000000ZG : ZIT 106

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**Ziegler Instrumentation UK Ltd.**

Central Buildings, Woodland close old woods Trading Estate, Torquay Devon, TQ2 7BB, United Kingdom  
+44-1376 335271 | [info@ziegler-instrument.com](mailto:info@ziegler-instrument.com) | [ziegler-instrument.com](http://ziegler-instrument.com)