DET-20A

DIGITAL EARTH TESTER WITH USB - BLUETOOTH

DET-20A is a conventional type 4 ½ digit LCD display which is designed to measure Earth Resistance, Soil Resistivity & Earth Voltage. It has a unique RSR technology in which even at the drop of battery voltage the measurement reading remain constant. DET-20A has 128Hz test frequency which eliminates the harmonics interference and has replaceable Alkaline battery which provides on site flexibility. Earthresistance is measured by three wires & Soil Resistivity is measured by four wire measurement techniques. This meter is shock proof, drop and dust proof. It has ABS casing which is useful for heavy duty. DET-20A is designed as per IS 9223.

Features

- 4 ½ digit LCD Display with pleasant backlit.
- 3 terminal and 4 terminal Measurement Method.
- Earth Resistance Range 0.0001Ω to 20.000kΩ
- 4 Wire Soil Resistivity Measurement
- Replaceable Alkaline Batteries
- Earth Measurement Voltage up to 200V
- Ratio Metric Synchronous Rectification
- Store reading access with Galvanic isolated USB port
- Internal memory 1000 records
- Bluetooth Interface and Cloud Connectivity through MOT-WARE App
- Auto-ranging
- Lo Bat Indication

Applications

The integrity of the grounding system is very important in an electrical power system for the following reasons:

To maintain a reference point of potential (ground) for equipment and personnel safety. To provide a discharge point for travelling waves due to lightning. To prevent excessive high voltage due to induced voltages on the power system

Therefor to maintain sufficiently low resistance values of grounding systems, their periodic testing is required. The testing involves measurement to ensure that they do not exceed design limits.

The measurement of ground resistances may only be accomplished with specially designed test equipment. The most common method for measuring ground resistance uses the fall-of-potential principle of alternating current (AC) at higher frequency circulating between an auxiliary electrode and the ground electrode under test; the reading will be given in ohms and represents the resistance of the ground electrode to the surrounding earth.

Soil Resistivity is also the key factor that determines what the resistance of a grounding electrode will be, and to what depth it must be driven to obtain low ground resistance. The resistivity of the soil varies widely throughout the world and changes seasonally. Soil Resistivity is determined largely by its content of electrolytes, consisting of moisture, minerals, and dissolved salts. A dry soil has high resistivity if it contains no soluble salts. It figures has a direct impact on the overall sub-station resistance and how much earth electrode is required to achieve the desired values. Lower the resistivity, fewer the electrodes required to achieve the desired earth resistance value. Hence the Soil Resistivity is also important test.

The methods of measuring and testing the Earth Resistance and Soil Resistivity:

3 pole method used for Earth Resistance testing

4 pole method used for Soil Resistivity testing.

Technical Details

DET-20A

Specification

Test Mode	3 & 4 Pole ART Selective resistrance measurement
Power supply	Internal, replaceable alkaline battery Duracell 1.5V x 6nos.
Range	0.0001Ω to 20.000 kΩ Auto Range
Accuracy	±0.5% of reading ±2 digits at 25°C ± 2°C
	3P ± 10mΩ
Test Frequency	3P & 4P resistivity
	128Hz (± 0.5Hz)
Test Current Injection	10mA AC approx. @ 19.999Ω range
	1mA AC approx. @ 199.99Ω range
	100µA AC approx. @ 1999.9Ω range
	10µA AC approx. @ 19.999kΩ range
Display	4 ½ digit LCD Display with pleasant backlit
Operating Temperature	0°C to 55°C
Storage Temperature	-10°C to +60°C
Relative Humidity	95% RH at 40°C max. (Non Condensing)
IP rating	IP 54
Measurement rating	CATIII 1000V/CATIV 600V
Safety	Safety Meets IEC 61010 EMC
EMC	Meets IEC 61326
Dimensions	230 mm(H) X 165 mm(W) X 95 mm(L).
Weight	1.35 Kg (Approx.)
Data Download	USB
Data Storage	1000 Data storage
Resistivity Calculation	Method Wenner: PE = 2 π a Rw (Ωm)
Maximum output voltage	< 40V AC approx.
Earth Voltage Measurement	2V to 200V AC
	Accuracy : (±2% of the range ±2v)
	Resolution : (0.1 V)
RoHS compliant	Yes

Accessories

Standard

Earthing Spike New For DET-20A 250mm	4 Nos
Claw Hammer Steel Shaft 220 Gms-8"	1 No
Battery 1.5V, Alkaline, Type AA	6 Nos
Instrument Carrying Case For DET-20A	1 No
Instruction Manual For DET-20A	1 No
USB 2.0 A/b Cable 1.5 MTR Long	1 No
Pen Drive	1 No
Wire Spools For DET-20 And DET-20A	1 Set
(10mtr, 20mtr, 30mtr & 40mtr measurement - cable on a winder as standard)	
Test & Calibration Report	1 No

Optional

Earthing Spike with Screw Nut & Washer 450mm	4 Nos
Bluetooth Software	
MOT-WARE Desktop Application	

Typically used for

Standard

- Substation Earth Testing.
- To test telecom tower grounding, Railways Earthing.
- To test the quality of grounding without disconnecting the ground rod under test.
- Earth Resistance of Grid.

ORDERING INFORMATION

Product	Order Code
DET-20A with Standard Accessories	**109314010**

Notes : 1. The Instrument is accompanied with Test & Calibration sheet. **2.** Test Facilities can be provided at the factory with the available test set-ups only. **3.** The company's policy includes continuous improvement of its product. We, therefore, reserve the right of any deviation from illustration or specifications without notice. **4.** Stated accuracies are valid from 10% of the range to 95% of the range. **5.** Accuracy specified for temperature range of 25°C ± 5°C & 55% RH ± 10%.