



Technical Data Sheet

ETA 23

DIGITAL EARTH RESISTANCE TESTER



ETA 23 Digital Earth Tester is a high-performance instrument designed for accurate verification and evaluation of electrical earthing installations. It enables reliable testing using Two-Pole and Three-Pole earth resistance measurement methods, ensuring precise assessment of grounding system quality in real field conditions. In addition to resistance testing, ETA 23 also measures Earth Voltage, allowing users to verify site voltage conditions before conducting earthing tests, preventing hazards and ensuring safe operation. Trusted by electricians, commissioning engineers, maintenance professionals, and electrical contractors, ETA 23 is a compact, rugged, and essential tool for modern electrical testing and safety assurance.



Application

- Electrical installations and maintenance
- Soil analysis for new construction projects
- Substation grounding validation
- Preventive maintenance and safety audits

Product Features

- **Two-Pole Earth Resistance Measurement**
 - Enables quick and convenient measurement of earth resistance using only two terminals, suitable for checking earth pits without disconnecting wiring.
- **Three-Pole Earth Resistance Measurement**
 - Provides accurate earth resistance measurement using auxiliary electrodes (P & C stakes) for precise site testing as per standard testing methodology.
- **High Interference & Noise Rejection (up to 50 Vpp)**
 - Advanced filtering and signal processing allow reliable measurements even in high electrical noise environments, ensuring stable readings on live industrial sites.
- **Earth Voltage Measurement (Up to 450V AC)**
 - Measures ground-to-neutral voltage to verify installation safety, detect leakage, and monitor system health before conducting earth resistance testing.
- **Backlight LCD Display**
 - Bright backlight display ensures clear visibility of readings in low-light conditions such as basements or outdoor night testing.
- **Display HOLD Function**
 - Enables users to capture and review stable readings without maintaining probe contact, improving ease of use and safety.
- **Built-in Volatile Memory (Storage of 50 Readings)**
 - Can store up to 50 test results in memory, enabling easy analysis, review, and documentation without needing to re-test
- **Overload Protection (OL Indication)**
 - Automatic protection up to 1.2 times the measuring range (10 sec), safeguarding the instrument from accidental excessive voltage/current exposure..
- **Battery Level Indicator**
 - Real-time battery level display helps prevent unexpected shutdowns during testing and supports planned field operations.
- **Rugged Handheld Design**
 - Compact, portable, and firm-grip ergonomic enclosure designed for tough field environments.
- **Runs on Standard AAA Alkaline Batteries**
 - Powered by 6 × 1.5 V AAA alkaline batteries, ensuring easy availability and long field runtime.
- **Auto Power-Off Function**
 - Automatically switches off after 2 minutes of inactivity to conserve battery life.

Technical Specifications

Earth Resistance Measurement (2P / 3P)

| | |
|------------------------|--|
| Measurement Range: | 20 Ω , 200 Ω , 2000 Ω |
| Resolution | 0.01 Ω (20 Ω), 0.1 Ω (200 Ω), 1 Ω (2000 Ω) |
| Test Current Injection | 3.3 mA @20 Ω range, 1.9 mA @200 Ω range, 1.9 mA @2000 Ω range. |
| Test Frequency | 820Hz |
| Accuracy | \pm (1.5% of reading + 10 digits) @ 20 Ω , \pm (1.5 % of reading + 5 digits) @ 200 Ω , @ 2000 Ω |
| Open Circuit Voltage | Max. 47 V |
| Measuring time | 10 seconds |
| Interference Rejection | 50 Vpp |
| Overload Indication | "OL" is displayed |

Earth Voltage Measurement

| | |
|---------------------|-------------------------------------|
| AC Voltage Range | Up to 450 V AC |
| Accuracy | \pm (1.5 % of reading + 5 digits) |
| Resolution | 0.1 V (199.9 V), 1 V (450 V) |
| Measuring Frequency | 50/60Hz |
| Overload Indication | "OL" is displayed |

Environmental Specifications

| | |
|-----------------------|--|
| Operating Temperature | -5 $^{\circ}$ C to +60 $^{\circ}$ C |
| Storage Temperature | -30 $^{\circ}$ C to +70 $^{\circ}$ C (without Battery) |
| Relative Humidity | Up to 85% RH (non-condensing) |
| Temp Coefficient | \pm 1% of applicable accuracy per 10 $^{\circ}$ C |

Power Supply

| | |
|--------------|-----------------------------------|
| Battery | 6 x AAA Standard Size |
| Battery Type | 1.5V Alkaline Batteries |
| Service Life | Typically 10 sec * 1200 Operation |

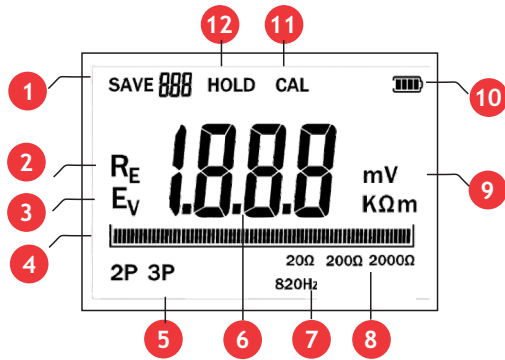
Mechanical Specification

| | |
|------------------------|--------------------------------------|
| Dimensions (W x H x D) | 97 mm \times 205 mm \times 45 mm |
| Weight | ~495 g (with batteries) |
| Enclosure Protection | IP 40 |
| connector Protection | IP 20 |
| case | Rugged Portable Handheld Device |

Display

| | |
|-----------------------|-----------------------------------|
| Display Type | 3 1/2 Digital LCD with Back Light |
| Main Character Height | 17.53 mm |
| Sub Character Height | 6.61 mm |
| Display Type | 1999 (as per mode & range) |

Technical Specifications



1. SAVE / LOAD Indication

2. Earth Resistance Indication (RE)

3. Earth Voltage Indication (EV)

4. Analog Bar Graph

5. Measurement mode & probe method selection

6. Measured Value Display

7. Test Signal Frequency

8. Selected Measurement Range

9. Measurement Units

10. Battery Status Indicator

11. Calibration Mode (CAL)

12. Display Hold Indication

Safety & Compliance

| | |
|----------------------|------------------------------|
| Safety Standard | IEC 61010-1 |
| EMC Compliance | IEC 61326-1 |
| Performance Standard | IEC 61557-1, IEC 61557-5 |
| Pollution Degree | 2 |
| Measurement Rating | CAT III 600 V, CAT IV 300 V, |
| Ingress Protection | IP as per IEC 60529 |
| CE Certification | Yes |

Included Accessories

| | |
|---|-------|
| Earth Spikes 10mm dia. Length 250 mm | 2 Nos |
| Simple Test Lead with Alligator Clips (double plugs x 1, single plug x 1) | 1 Nos |
| Red Test Lead 20m | 1 Nos |
| Yellow Test Lead 10m | 1 Nos |
| Green Test Lead 10m | 1 Nos |
| AAA Batteries (Alkaline) | 6 Nos |
| User Manual | 1 Nos |
| Carrying Bag | 1 Nos |

Optional Accessories

| | |
|-------------------------------------|-------|
| Earth Spikes 10mm dia. Length 250mm | 2 Nos |
| Hammer | 1 Nos |

Note : The stated measurement accuracy is applicable when the instrument is used with the standard probes supplied by the manufacturer and under specified reference conditions.