

DET62D**Three-Terminal Ground Resistance Tester**

- **Simple, fully automatic operation**
- **Three terminal measurement for ground electrode testing**
- **Superior noise rejection to 40 V**
- **High tolerance to spike resistance**
- **Weatherproof case, protection to IP54**

DESCRIPTION

The DET62D is a fully automatic, three terminal instrument built into a rugged, water resistant case giving protection for outdoor use. The instrument is suitable for the testing of single ground electrodes such as lightning conductors and other small grounding systems. The resistance of conductors such as conduit coupling joints can also be measured.

Ground resistance can be measured directly from 100 m Ω to 2 k Ω . The ground resistance reading is displayed quickly and accurately on a large, clear 3 1/2 digit liquid crystal display. LEDs indicate when there is a high auxiliary current spike or voltage probe resistance which may affect the ground resistance measurement.

The instrument uses the three-terminal method of measurement in which the 'X' terminal is connected to the electrode under test and the 'C' and 'P' terminals are connected to temporary, remote current and potential electrodes. Operation is started by pushing a button on the front panel. All other functions of the DET62D are completely automatic. The instrument checks for conditions that may cause an invalid reading during a test. The low service error and wide operating temperature range enable accurate results to be achieved in real on-site conditions.

The test frequency has been chosen to avoid interference from stray currents at power frequencies and their harmonics. An LED indicates when the noise interference is too high to take a valid reading.

Six 1.5 V AA dry cells provide power for the DET62D allowing 700 typical 15 second tests. A low battery symbol on the display gives an indication of battery condition.

The instrument is built into a small, lightweight case that has been designed for outdoor use and has IP54 protection. Three large terminals allow either spade or hook connectors, 4 mm plugs or bare ended wire to be used for the test leads. A terminal shorting bar is provided for continuity testing or ground electrode measurement using the 'dead ground' method. A removable cover allows access to the battery compartment.

APPLICATIONS

Ground electrode testing is an important part of electrical installation and maintenance procedure. The DET62D can be used by the electrical contractor or maintenance engineer to check the effectiveness of many types of earth electrode or earth electrode systems or for measuring the resistance of conductors.

The DET62D digital ground tester is a reliable instrument able to measure the earth resistance of simple electrode systems. Suitable for testing to the NE code and other international wiring regulations including IEC364, VDE 0413, and BS7671, the DET62D can be used in a wide variety of applications.

The direct indication of excessive noise and high spike resistances avoids measurement errors and lengthy testing of these parameters. The direct digital reading is unambiguous, avoids errors and assists in faster, more economic testing.

Earth testing kits including suitable test spikes and leads and a book describing several testing techniques entitled "Getting Down to Earth" are also available.

FEATURES AND BENEFITS

- Simple to use, one touch operation
- Auto switch off to save battery power
- Rugged, weatherproof case
- Large, clear LCD
- Indicators show if reading may be invalid
- Terminal shorting bars supplied
- Earth testing kits available
- Optional carrying case and harness

SPECIFICATIONS

Ground Resistance Ranges (Autoranging)

200 Ω Range: 0.1 Ω to 199.9 Ω

2 k Ω Range: 0.001 k Ω to 1.999 k Ω

Accuracy (at 23°C)

±2 % of reading ±3 digits

Total service error

±5 % of reading ±3 digits

Display

31/2 digit LCD with Ω , k Ω and low battery voltage indicators. LEDs for high noise, high voltage probe resistance and high current loop resistance

Test Frequency

128 Hz ±0.5 Hz

Test Voltage

Maximum 50 Volts peak.

Test Current

(constant within a range)

200 Ω Range: 1 mA a.c. r.m.s.

2 k Ω Range: 100 μ A a.c. r.m.s.

Current Loop Interference

Voltages of 60 V pk to pk, 50 Hz, 60 Hz, 200 Hz or 16-2/3 Hz in the current loop will have a maximum effect of 1% on the reading with minimal current loop resistance.

Potential Circuit Interference

Voltages of 40 V pk to pk at 50 Hz, 60 Hz, 200 Hz or 16-2/3 Hz in the potential circuit will have an effect of typically 1% on the reading in the 20 Ω to 2 k Ω ranges. If the 'NOISE' light is not showing, the maximum error due to noise voltage on these ranges will not exceed 2%.

Maximum Current Loop Resistance

An additional error of typically 1% will be introduced for current loop resistances of:

200 Ω Range: 40 k Ω

2 k Ω Range: 400 k Ω

If the 'Rc' light is not showing, the maximum error will not exceed 2%.

Note: With minimal current loop interference.

The instrument will indicate if a combination of current loop interference and resistance are likely to cause an error in the reading.

Maximum Voltage Probe Resistance

An additional error of typically 1% will be introduced for a voltage probe resistance of 75 k Ω .

If the 'Rp' light is not showing, the maximum error will not exceed 2%.

Terminals

Binding posts suitable for 4 mm plugs, bare ended wire and spade adapters.

Instrument Protection

IP54

Power Supply

6 x 1.5 V (AA) IEC LR6 cells giving 700 typical 15 s tests at 68° F (20° C).

Safety

The instrument meets the requirements of IEC1010-1 (1992), EN61010-1 (1993).

EMC

The instrument meets EN50081-1 and EN50082-1 (1992).

Flash Test

Tested to 2.3 kV r.m.s.

Dimensions

9.4 H x 6 W x 2.75 D in. approx. (243 H x 161 W x 70 D mm)

Weight

1.5 lb approx. (0.82 kg)

Voltage Withstand

240 V a.c. between any two terminals.

Temperature Range

Operating: -4° F to +113° F (-20° C to +45° C)

Storage: -40° F to +158° F (-40° C to +70° C) (without batteries)

Temperature Coefficient

± 0.1% per °C over the temperature range 5° F to 113° F (-15° C to +45° C)

Humidity

Operating: 90% RH max. at 113° F (45° C)

Storage: 70% RH max. at 131° F (55° C)

ORDERING INFORMATION

| Item (Qty) | Cat. No. |
|--|-----------------|
| Three Terminal Digital Ground Tester | DET62D |
| Included Accessories | |
| Operating instructions | 6172-047 |
| Terminal shorting bar | |
| Optional Accessories | |
| Carrying case | 6420-103 |
| Instrument carrying harness | 6220-537 |
| Standard Accessory Kit Includes three color-coded test leads, 25, 50 and 100 ft [8,15 and 30 m] (1 set); ground rods, 20 in. [508 mm] (1 pr); and canvas case for leads and rods only | 250579 |
| Deluxe Accessory Kit Includes three color-coded test leads, 25, 50 and 100 ft [8,15 and 30 m] (1 set); ground rods, 20 in. [508 mm] (1 pr); and padded case to hold instrument, leads and rods | 250581 |
| Test leads, color-coded, 25, 50 and 100 ft [8,15 and 30 m] (1 set) | 250576 |
| Ground Rods | |
| 11 in. [250 mm] (1 pr) | 250584 |
| 20 in. [508 mm] (1 pr) | 250580 |
| 30 in. [760 mm] (1 pr) | 250582 |
| Getting Down to Earth" manual | AVTM25-TA |

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