

**Megger.**

**DET2/3**

## Advanced Ground Tester



- **High resolution of 1 mΩ, ideal for large ground systems**
- **Versatile test modes**
- **High accuracy for ground electrode grid and soil resistivity tests**
- **Rechargeable battery power that can last all day with a fast re-charge (up to 10 hours)**
- **Robust instrument with IP65 protection**
- **Automatic test frequency selection, with filters and high current features**
- **Diagnostic trace display**
- **Data storage - 900,000 points**
- **Large color display that shows numeric and graphical results**

### DESCRIPTION

The Megger® DET2/3 automatic ground test instrument is robust, compact and designed to measure ground electrode resistance and soil resistivity. It provides a full range of test methods and excels at the four terminal method of measurement, which eliminates the resistance of the current circuit from the measurement.

The DET2/3 is a reliable instrument for use on large or more complex ground systems, which include communications ground systems and difficult test environments. It can be used to test in accordance with BS 7430 (earthing / grounding), BS-EN-62305 (lightning protection), IEEE Standard 81, and railway applications.

Soil resistivity measurements are used to establish the optimum electrode design and site, as well as archaeological and geological investigations.

The DET2/3 is housed in a dual case design, which includes a tough outer case to protect the tester from knocks/drops and an inner fire retardant case.

### FEATURES

#### High accuracy earth (ground) measurements

The DET2/3 provides accurate 1 mΩ resolution measurements of ground electrode resistance.

With its microprocessor controlled system, it provides a flexible and 'user-friendly' approach to ground tests by the provision of excellent error detection capabilities and full test information shown on a large color display.

Test frequency, test current and filtering can be quickly and easily adjusted so that adverse conditions, which can influence the test, can be overcome.

A wide band of test current frequencies, with a resolution of 0.5 Hz, can be used to eliminate errors caused by noise in the ground.

The DET2/3 also includes an automatic frequency selection feature that scans for frequencies with the lowest noise level and then runs a test at that frequency. The selected test current frequency, test current level and the increased filtering option are stored in memory for use in subsequent tests.

**Continuity measurements and bonding**

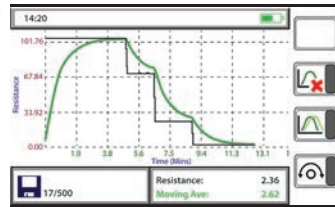
- **Single resistance range:** One fully automatic range from 0.01 Ω to 1.0 kΩ
- **Display:** Three digit display
- **Accuracy:** ±3% (±2 digits)
- **Bi-directional tests:** Option for automatic bi-directional tests without the need to reconnect leads
- **Short circuit current:** 200 mA continuity test currents
- **Lead null:** Lead resistance compensation (NULL) operates with a lead resistance up to 10 Ωs of resistance

**Trace display and data storage**

Utilizing the latest processors, the DET2/3 can provide a live trace of its measurements, which graphically shows the amount of noise from the system under test - a powerful diagnostic tool for anyone doing ground testing.

Use of the latest processors and a large internal memory allows for immediate calculations of resistivity (Wenner or Schlumberger method) and the ability to save a complete day's worth of test results.

Test result data can be downloaded directly through a USB flash drive or straight to a Windows PC running PowerDB™ software.



**Weatherproof and rugged**

The DET2/3 is sealed to IP54 standard, which provides weatherproofing during operation (case lid open). When the case lid is closed, its protection standard is to IP65 (water and dust damage).

The case is made of a tough and light copolymer polypropylene, which can withstand the rough and tumble of outdoor use.

**Portable power**

An internal Li-ion battery provides for a full day of tests.

The Li-ion battery has a fast recharge facility that allows a dead battery to provide an afternoon of tests, if charged during a lunch break.

The DET2/3 can also operate from a standard 12 V DC battery supply.

**SPECIFICATIONS**

**2, 3 and 4 pole resistance measurements**

<b>Range</b>	0.001 Ω to 20.00 kΩ auto range
<b>Display</b>	4-digit display
<b>Accuracy</b>	±0.5 % of reading ±2 digits at 23 °C ±2 °C

<b>Operational uncertainty</b>	±2 % of reading, ±2 digits (meets IEC61557 operational uncertainty requirement with readings over 10 mΩ) when spike resistances are below 100 Ω ±5% of reading ±2 digits ±10 mΩ (meets IEC61557 operational uncertainty requirement with readings over 10 mΩ)
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<b>Test standards</b>	BS 7430 (Grounding) BS 62305 (Lightning) BS50122 (Railway) IEEE Standard 81
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<b>Test frequency</b>	10 Hz to 200 Hz in steps of 0.5 Hz
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<b>Test current</b>	50 mA max.
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<b>Maximum output voltage</b>	Less than 50 V rms
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<b>Maximum interference</b>	Up to 50 V pk to pk
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**3 and 4 pole ART (selective) resistance measurements**

<b>Range</b>	0.01 Ω to 10.00 kΩ auto range
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<b>Accuracy</b>	±5 % of reading ±3 digits at 23 °C ±2 °C
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**Stakeless resistance measurement**

<b>Range</b>	0.01 Ω to 200 Ω
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<b>Accuracy</b>	±7 % accuracy, ±3 digits
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**Leakage current**

<b>Range</b>	0.00 A to 2.00 A
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<b>Accuracy</b>	±5% (±3 digits)
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**Instrument specifications**

<b>Display</b>	4.3 inch QWVGA, daylight viewable backlit color
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**Operating temperature and humidity**

+14 to +104 °F (-10 to +40 °C)  
90 % RH max at +104 °F (+40 °C)

<b>Storage temperature</b>	-4 to + 140 °F (-20 to +60 °C)
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<b>IP rating</b>	IP54 operational (lid open), IP65 storage (lid closed)
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<b>Measurement rating</b>	CAT IV 300 V
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<b>Power supply</b>	Internal Li-ion battery or external 12-18 V, 65 W, DC supply
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<b>Battery life</b>	Up to 10 hrs use
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<b>Battery charging time</b>	Fast recharge to 50%, 3 hrs for 100%
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<b>Safety</b>	Meets IEC 61010
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<b>EMC</b>	Meets IEC 61326
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<b>Dimensions</b>	L12.4 x W 11.2 x H 7.1 in. (L 315 x W 285 x H 181 mm)
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<b>Weight</b>	9.9 lb (4.5 kg)
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<b>Data download</b>	To PC through USB 2.0
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<b>Data storage</b>	On board 500 record storage providing 900,000 data points downloadable as *.txt
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<b>USB type A</b>	Data download to USB drive
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<b>USB type B</b>	Data download to PC
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**Secondary measurement display**

Noise, voltage and current

<b>Resistivity calculation</b>	Wenner: $PE = 2 \pi a R_w$
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Schlumberger:  
 $PE = \pi \frac{b}{(b+a)} R$

**Test modes** Internally set 2P, 3P, ART (Selective), 4P, Stakeless (clamp) modes

**Aux inputs** MCC1010, MVC1010

**RoHS compliant** Yes

**Continuity test cables and clips**

- 1.4 m cables
- 2 wire connection cable
- Crocodile clips
- Probes

**ACCESSORIES**

**MCC1010 and MVC1010**

- For Stakeless tests
- For Attached Rod Technique (ART) tests

**Accessories bag**

- Holds a full suite of accessories
- Water resistant
- Toughened bottom for outdoor use

**Cable reels with spike**

- Terminal adapter Detachable retro-fit for C1, P1, P2, C2 connectors
- Sturdy handle and a smooth unwind and wind action
- Cable ‘feed through’
- 100 ft, 165 ft, or 330 ft (30 m, 50 m or 100 m) cables
- Attachable 12 in. (30 cm) ground spike
- Spike can be hammered into the ground
- Unique daisy-chain feature to create longer lengths



		ETK30 1010-176	ETK50 1010-177	ETK100 1010-178	ETK50C 1010-179	ETK100C 1010-180
Test lead on Reel	Red	100 ft (30 m)	165 ft (50 m)	330 ft (100 m)	165 ft (50 m)	330 ft (100 m)
	Yellow	65 ft (20 m)	165 ft (50 m)	330 ft (100 m)	165 ft (50 m)	330 ft (100 m)
	Black		100 ft (30 m)	200 ft (60 m)	100 ft (30 m)	200 ft (60 m)
	Green		100 ft (30 m)	200 ft (60 m)	100 ft (30 m)	200 ft (60 m)
Test lead 1 m to 1.4 m with croc clip black		■				
Ground Test Spikes *		2	4	4	4	4
Interconnection lead (Reel to spike) *	Red	■	■	■	■	■
	Yellow	■	■	■	■	■
	Black		■	■	■	■
	Green		■	■	■	■
MCC1010					■	■
MCC1010 test lead					■	■
MVC1010					■	■
MVC1010 test lead					■	■
Measuring Tape			165 ft (50 m)	330 ft (100 m)	165 ft (50 m)	330 ft (100 m)
Accessory bag for kits		■	■	■	■	■

\* Supplied with reels

	DET2/3	DET2/3 WITH 165 FT (50 M) TEST KIT	DET2/3 WITH 330 FT (100 M) TEST KIT
DET2/3	■	■	■
Charger	■	■	■
MCC1010, Current clamp		■	■
MVC1010, Voltage clamp		■	■
User guide	■	■	■
Calibration verifier, instrument	■	■	■
Calibration verifier, clamps		■	■
Reel with 165 ft (50 m) test cable (x2)		■	
Reel with 100 ft (30 m) test cable (x2)		■	
Reel with 330 ft (100 m) test cable (x2)			■
Reel with 200 ft (60 m) test cable (x2)			■
Test spikes (x4)		■	■
330 ft (100 m) tape measure			■
4.5 ft (1.4 m) leads with connectors and clips (x2)		■	■
Pouch	■	■	■
Carry strap	■	■	■

### ORDERING INFORMATION

Item (Qty)	Order Code	Optional accessories, continued	Order Code
DET2/3 Ground tester	1008-949	Clamp MCC1010	1010-516
DET2/3 Ground tester, 165 ft (50 m) kit*	1008-969	Clamp MVC1010	1010-518
DET2/3 Ground tester, 330 ft (100 m) kit*	1008-989	Accessory bag	1010-854
*Kits above include clamps and continuity leads		12 V DC power lead	6231-584
<b>Optional accessories</b>		Battery	1002-552
Two ground stakes, 12 in. long (30 cm long)	6220-804	Power supply	1010-793
Cable reel kit ETK30	1010-176	Terminal adapter, detachable retro-fit for C1, P1, P2, C2 connectors	6220-803
Cable reel kit ETK50	1010-177		
Cable reel kit ETK100	1010-178		
Cable reel kit ETK50C	1010-179		
Cable reel kit ETK100C	1010-180		

# Megger<sup>®</sup>

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ISO 9001

The word 'Megger' is a registered trademark