

# DET10C, DET20C

## Earth/Ground Resistance & Leakage Current Clamp Testers



- Easy, fast clamp-on operation – No rods or cables necessary
- Measures ground resistance from  $0.025\Omega$  to  $1550\Omega$
- Measures ground leakage current from  $0.2\text{mA}$  to  $35\text{A}$
- Auto ranging with high and low alarms
- Automatic self calibration
- Extensive data storage and USB data download for later analysis (DET20C)

### DESCRIPTION

The Megger models DET10C and 20C measure earth/ground resistance and current flow using clamp-on technology. The instruments induce a test current into the system without the need to disturb existing connections. Either unit is a useful addition to the more traditional methods of earth/ground resistance testing that may require disconnection and the use of stakes or ground rods. Simply clamp around the conductor or stake/rod and measure the resistance to ground fast and accurately.

The DET10C and 20C can also be used to measure earth/ground resistance in multiple loop installations without disconnecting the earth or ground. This allows the user to perform the test quickly and easily in total safety, with the added convenience of having a single point of measurement to read the earth/ground resistance.

Each instrument also provides a true RMS current measurement reading to better indicate potential measurement problems and provide a useful overview of the dynamics of the general earth/ground system.

The units are rugged, compact and have configurable audible alarms. They also feature auto shutdown (which is also configurable), data storage and self calibration on power-up, and are supplied with a calibration loop – all contained in a rugged carry case. The DET20C also comes with a USB interface cable and is compatible with Megger Download Manager Software (included) allowing further analysis and storage of data.

### APPLICATION

The DET10C and 20C have a variety of applications including:

- Use to measure resistance and continuity of grounding loops around pads and buildings.
- Use on multi-grounded systems without disconnecting the ground rod/stake under test.
- Use to measure leakage current flowing to ground or circulating in ground systems.
- Use on cell towers, RF transmitters and telecommunications sites.
- Use to inspect and verify lightning protection systems.
- Use on a variety of consumer installations, including pools, spas, etc.
- Measure shield leakage current to ground for shield continuity checks

**FEATURES AND BENEFITS**

- Easy and fast clamp-on operation. No need for cables or auxiliary rods/stakes.
- Large LCD display screen that can be read in bright sunlight.
- Measures ground resistance from 0.025Ω to 1550Ω.
- Direct reading of continuity and ground loop resistance.
- Measures ground leakage or phase current from 0.2mA to 35A.
- Large jaw opening to accommodate a variety of conductors.
- Indication of high noise content that may affect readings.
- Lightweight...only 750g (1.65lbs), yet exceptionally rugged for regular field use.
- Hold function for difficult to reach installations.
- Auto-off to save on battery power.
- Configure high and low alarms with audible indication for fast field checks.
- On board storage of test results (up to 8180 records).
- Calibration check loop to insure proper operation.
- Rugged, yet lightweight storage case contains complete testing kit.
- USB interface for download of test data for later analysis (DET20C).

**ELECTRICAL SPECIFICATIONS**

Ground Resistance Range <sup>2</sup>	Resolution	Accuracy <sup>1</sup>
0.025 - 0.25 Ω	0.002 Ω	± 1.5% ± 0.05 Ω
0.25 - 9.999 Ω	0.02 Ω	± 1.5% ± 0.1 Ω
10 - 99.99 Ω	0.04 Ω	± 2.0% ± 0.3 Ω
100 - 199.9 Ω	0.4 Ω	± 3.0% ± 1.0 Ω
200 - 400 Ω	2 Ω	± 5.0% ± 5
400 - 600 Ω	5 Ω	± 10% ± 10 Ω
600 - 1550 Ω	20 Ω	± 20%

<sup>1</sup> Loop resistance non-inductive, external field <50 A/m, external electrical field <1 V/m, conductor centred in jaws.

<sup>2</sup> Resistance measurement frequency 1.667KHz

Alarm Type	Range	Resolution
High Alarm	0 - 1550 Ω	1 Ω
Low Alarm	0 - 1550 Ω	1 Ω

Leakage Current Range <sup>3</sup>	Resolution	Accuracy
0.200 - 1.000 mA	0.001 mA	± 2.0% ± 0.05 mA
1.00 - 10.00 mA	0.01 mA	± 2.0% ± 0.03 mA
10.0 - 100.0 mA	0.1 mA	± 2.0% ± 0.3 mA
100 - 1000 mA	1 mA	± 2.0% ± 3 mA
0.20 - 35 A	0.01 A	± 2.0% ± 0.03 A

<sup>3</sup> Auto range, 50/60Hz, true RMS to crest factor <3.5



The DET20C instrument is shown being used to test a pole ground.

**GENERAL SPECIFICATION**

Conductor size .....	35mm Ø approx
Battery type .....	9V IEC 6 LR61 alkaline
Display type .....	4 digits 9999 counts LCD
Range selection .....	Automatic within function
Overload indication .....	OL
Power consumption.....	40 mA
Battery life .....	3000 measurements approx
Auto power down .....	5 minutes approx
Sampling time .....	0.5 seconds
Operating temperature .....	0 to 50° C
Storage temperature.....	-20° C to 60° C
Operating humidity .....	Less than 85% RH
Storage humidity .....	Less than 75% RH
Dimensions.....	276 L X 100 W X 47 H (mm)
Weight.....	750g (1.65lbs)
Data logging capacity DET10C.....	116 records
Data logging capacity DET20C.....	8180 records

## DET20C OPERATION

### Jaw Assembly

Extra large opening – 35 mm (1.36 in) to encircle electrode or ground rod. No air is allowed between the two jaw halves.

### Jaw Trigger Lever

### FUNC Button

Used to select the following functions:

**HI:** high alarm level in ohms

**LO:** low alarm level in ohms

**SEC:** sampling interval (in seconds)

**dI:** download stored data to a PC

**NO:** allows scrolling through stored readings

### HOLD Button

Maintains last measurement on the LCD display

### Selector Switch

Quickly and easily select

- Leakage current (amps)
- Leakage current (milliamps)
- High/Low Alarm
- Ground resistance (ohms)

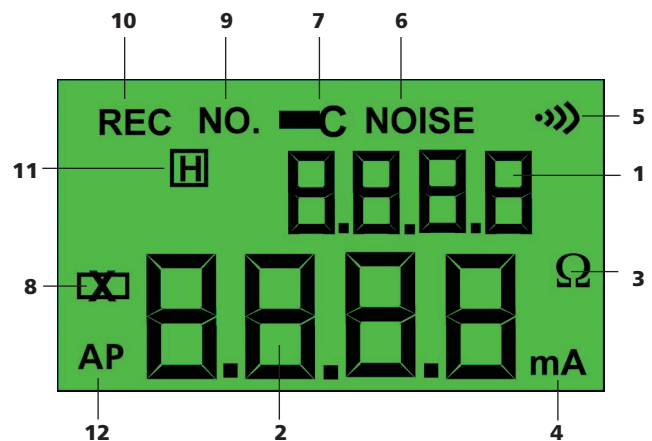
### LCD Panel

### REC Button

Used to increment value or start data download when the FUNC button is in use. Also used to start data logging or record a reading.

## DET20C DISPLAY EXAMPLE

- Function** Display current selected function or current record number.
- Digits** Display value from 0 to 9999 with decimal point.
- Ohm** Indicates resistance mode and alarm functions.
- mA** Indicates ground leakage current mode in mA or A.
- >>>** Indicates instrument is set at the alarm position.
- NOISE:** Indicates ground resistance tester senses noise or excessive current present in the ground electrode.
- Jaw Open** Displayed if the jaws are opened during the measurement, this symbol and word OPEN will be shown in LCD.
- Low Battery** Indicates battery voltage is lower than required.
- NO.** Indicates the data record number in memory.
- REC** Indicates data logging is in progress.
- H** Indicates "HOLD" function activated.
- AP** Indicates Auto Power Off activated. Deactivate by holding down the REC button then turning on unit.



## DET20C Data Functions

- Store a specific reading
- Data logging
  - Adjustable sampling interval
  - Data logging capacity up to 8180 records (DET20C)
- Review of stored data
- Download data to a PC for later analysis





The DET20C instrument is shown being used to test a facility ground.



DET10C and 20C comes with a rugged carry case, calibration fixture, carry case shoulder strap and USB interface cable (DET20C only).

### ORDERING INFORMATION

Item (Qty)	Cat. No.
Digital Earth Test Clampmeter	DET10C
Digital Earth Test Clampmeter	DET20C
<b>Included Accessories (DET10C and DET20C)</b>	
Carry case	
Calibration loop	
Battery (fitted)	
<b>Included Accessories (DET20C)</b>	
USB interface unit	
Download Manager Software	

**UK**  
Archcliffe Road, Dover  
CT17 9EN England  
T (0) 1 304 502101  
F (0) 1 304 207342

**UNITED STATES**  
4271 Bronze Way  
Dallas, TX 75237-1019 USA  
T 1 800 723 2861  
T 1 214 333 3201  
F 1 214 331 7399

**OTHER TECHNICAL SALES OFFICES**  
Norristown USA, Toronto CANADA,  
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and The Kingdom of BAHRAIN.

**ISO STATEMENT**  
Registered to ISO 9001:1994 Reg no. Q 09250  
Registered to ISO 14001 Reg no. EMS 61597  
**DET20C\_10C\_DS\_en\_V07**  
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