

# DET14C and DET24C Digital Earth Clamps



- **Elliptical clamp shape improves access to earth cables and straps up to 50 mm**
- **Low maintenance flat jaw interface**
- **Measures ground resistance from 0.05 Ω to 1500 Ω**
- **Measures true RMS ground leakage current from 0.5 mA rms to 35 A rms**
- **CAT IV 600 V safety rating**
- **Backlit LCD display**

## DESCRIPTION

The DET14C and DET24C represent a new generation of earth/ground clamp-on resistance testers. These instruments induce a test current into earth systems and measure ground resistance in multi ground installations without needing to disconnect the ground. They offer market leading access, advanced features, simple operation and CAT IV 600 V safety protection.

Designed with flat core ends they prevent dirt build up, ensuring measurement integrity and improved reliability over products with interlocking teeth. Other enhancements over current generation products include improved accuracy and up to 300% increase in battery life. In electrically noisy environments the built-in filter function offers increased noise immunity.

DET14C and DET24C also offer a true RMS AC current measurement facility up to 35 Amps. The instrument's ability to measure current flowing in an earth cable is a useful safety feature, especially if the earth cable has to be disconnected. A high current flow to earth could draw an arc on disconnection with potentially severe consequences.

The elliptical shaped head design offers improved access to cables and earth straps in space constrained locations. The clamp head accommodates up to 37 mm diameter cable and 50 mm earth tapes making them suitable for use in power stations, substations, towers and many more facilities. Operation in dark and restricted areas is facilitated by a display with backlight and an audible tone associated with the hold key. Optimised jaw opening mechanism ensures proper jaw closure without excessive use of force when opening the jaws.

The DET14C offers storage of results for later on-screen recall and the DET24C supports a download of results via IrDA-to-USB link into PowerDB and Power DB Lite, Megger's

acceptance and maintenance test data management software. Stored data is indexed using a sequential serial number together with a time and date stamp for each record.

## FEATURES AND BENEFITS

- Auto-current measurement safety feature
- Memory to record and view results
- Automatic self calibration
- Auto ranging
- High and low alarms
- Real time clock for date and time stamping of results

## DET24C ADDITIONAL FEATURES

- IrDA USB interface to PC
- Advanced memory functionality with download
- Megger PowerDB/PowerDB Lite™ compatible

## APPLICATION

The earth resistance clamp meters are particularly suitable for measuring earth resistance in various installations such as buildings, pylons and RF transmitter sites without system disconnection. In addition, they can be used for the inspection and verification of lightening protection systems and virtually any installation where a current loop can be generated.

### SPECIFICATIONS

#### Resistance measurements

| Ground resistance range | Resolution | Intrinsic certainty |
|-------------------------|------------|---------------------|
| 0.05 Ω to 0.99 Ω        | 0.01 Ω     | ±1.5% ±0.05 Ω       |
| 1.00 Ω to 9.99 Ω        | 0.01 Ω     | ±1.5% ± 0.1 Ω       |
| 10.0 Ω to 99.9 Ω        | 0.1 Ω      | ±2% ±0.5 Ω          |
| 100.0 Ω to 199.9 Ω      | 0.1 Ω      | ±5% ±1 Ω            |
| 200 Ω to 400 Ω          | 1 Ω        | ±10% ±10 Ω          |
| 400 Ω to 600 Ω          | 1 Ω        | ±10% ±10 Ω          |
| 600 Ω to 1200 Ω         | 10 Ω       | ±20%                |
| 1200 Ω to 1500 Ω        | 10 Ω       | ±35%                |

- Frequency of measurement 1390 Hz.

#### Alarm settings

| Alarm type  | Range         | Resolution |
|-------------|---------------|------------|
| Threshold 1 | 1 Ω to 1500 Ω | 1 Ω        |
| Threshold 2 | 1 Ω to 1500 Ω | 1 Ω        |

#### Current measurements (RMS)

| Current range      | Resolution | Intrinsic Certainty |
|--------------------|------------|---------------------|
| 0.5 mA to 0.99 mA  | 0.01 mA    | ±2% ±0.05 mA        |
| 1.00 mA to 9.99 mA | 0.01 mA    | ±2% ±0.05 mA        |
| 10.0 mA to 99.9 mA | 0.1 mA     | ±2% ±0.1 mA         |
| 100 mA to 999 mA   | 1 mA       | ±2% ±1 mA           |
| 1.00 A to 9.99 A   | 0.01 A     | ±2% ±0.01 A         |
| 10.0 A to 35.0 A   | 0.1 A      | ±2% ±0.1 A          |

- True RMS readings up to a crest factor of 5.0 (peak current 40 A).
- Accuracy guaranteed for 50 Hz and 60 Hz.
- Measurement over the range 16 Hz to 400 Hz.
- Maximum current is 100 A rms continuous and 200 A rms for 60 s max at 50 Hz and 60 Hz

|                                    |   |
|------------------------------------|---|
| Maximum jaw opening                | 39 mm                                       |
| Maximum jaw inner dimensions       | 39 mm x 55 mm                               |
| Display type                       | 4 + 6 digit with backlight                  |
| Battery type                       | 4 x 1.5 V IEC LR6/AA alkaline               |
| Battery life                       | 24 hours continuous testing – see Note 1    |
| Auto power down                    | 300 s (reset by jaw action or button press) |
| Data logging                       | DET14C 256 records<br>DET24C 2 k records    |
| Data download (DET24C only)        | Opto-coupled IrDA-USB interface             |
| Range selection                    | Automatic within each mode                  |
| Sample time                        | <1 s  |
| Hold function                      | Yes with visual indicator                   |
| Alarm function                     | Yes with visual indicator                   |
| Warning buzzer                     | Yes   |
| Operating temperature and humidity | -20 °C to +50 °C, <85% RH                   |
| Storage temperature and humidity   | -40 °C to +60 °C, <75% RH                   |
| Weight                             | 985 g                                       |
| Instrument dimensions              | 248 mm (l) x 114 mm (w) x 49 mm (h)         |
| IP rating                          | IP30 with jaws closed                       |

Note 1: Whilst measuring a 25 Ω resistance without backlight

Performance  
IEC 61557-5  
IEC 61557-13 Class 1

#### Safety

EN 61010-2-032

CATIV 600 V  
Pollution degree 2

#### EMC

Class B Compliant, IEC 61326, BSEN 61326

**ORDERING INFORMATION**

| <b>Product</b>                                    | <b>Order Code</b> |
|---|-------------------|
| DET14C Digital earth test clamp-on meter          | 1000-761          |
| DET24C Digital earth test clamp-on meter          | 1000-762          |
| <b>Included accessories for DET14C and DET24C</b> |                   |
| Carrying case                                     | 1001-715          |
| Carrying strap (wrist loop)                       | 1001-716          |
| User guide CD-ROM                                 | 1001-198          |
| Calibration check                                 | 1001-498          |
| Battery AA (Alkaline) (4 required)                | 25511-841         |
| <b>Included accessories for DET24C</b>            |                   |
| USB IrDA dongle                                   | 90001-434         |
| PowerDB Lite software                             | 1000-576          |

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 Registered to ISO 9001:2008 Cert. no. Q 09250  
 Registered to ISO 14001:2004 Cert. no. EMS 61597  
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