

**ELECTRICAL TESTING**  
**Industrial maintenance catalogue**

**Megger**<sup>®</sup>



# Keeping the Power on

## Contents

Megger designs and manufactures more than 300 electrical test instruments and related software for testing a wide range of electrical assets. Our products contain many additional safety features to protect the user, the assets being tested, and to fail safely in the event of improper use. We use touch screen, prompts and automated routines to make testing easy and fast. We recognise that equipment can get tough treatment in the field, so all our products have high IP ratings and robust enclosures.

Megger's comprehensive range of electrical test equipment is ideal for solving problems encountered in industrial environments, including:

- **Insulation testing from low to high voltage AC and DC**
- **Motor and generator on-line and off-line testing**
- **Cable fault location and diagnostics**
- **Instrument and power transformer testing**
- **Protection, relay and circuit breaker testing**
- **Water leak detection and monitoring**

Megger's highly skilled application engineers, along with our global network of distributors and authorised service and repair centres, are there to help you with your buying decisions and to offer technical support during operation. We also offer a wide range of training opportunities, from introductory to advanced levels (visit [www.megger.com](http://www.megger.com) for more details) to help you keep the Power on.

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Scan for more product details



# Insulation testing

Insulation testers are Megger's best known products worldwide. In the 19th century, when the first cities became electrified in the course of the industrial revolution, Megger constructed the world's first 'hand dynamo'. This patented product generated enough voltage to measure resistances in the megohm range. Today, you can experience the exceptional accuracy, repeatability and reliability of Megger's insulation testers.



- Insulation measurement up to 1 kV/200 GΩ
- Stabilised insulation test voltage
- Faster single range continuity check 0.01 Ω to 1 MΩ
- Test voltage continuously adjustable from 10 V to 1000 V
- 600 V TRMS AC and DC voltage measurement
- Optional rechargeable batteries with mains or 12 V charging option
- Test category CAT IV 600 V
- Protection class IP54
- Ideal for energy suppliers

**Included accessories:** Red/black silicone test leads with probes and clamps, SP5 remote probe, information CD, 6 x AA batteries, hard case

**MIT400/2**



- Insulation testing up to 2.5 kV and 200 GΩ range in a hand held instrument
- Guard terminal for high resistance accuracy
- Adjustable insulation test voltage from 50 V to 2500 V
- Stabilised insulation test voltage
- Rechargeable options for mains and car charging
- Single range, faster continuity testing from 0.01 Ω to 1 MΩ
- Polarisation Index (PI) and Dielectric Absorption Ratio (DAR)
- CAT IV 600 V applications
- Includes new test voltage feedback control, which maintains the output test voltage to within 2% of the selected range, even when under test

**Included accessories:** Red/black/blue silicone test leads with prods and clips, 2.5 kV red/black/blue silicone test leads with clips, owner's information CD, batteries 6 x AA alkaline, carry case

**MIT2500**



# Insulation testing



- Insulation measurement up to 5 kV DC
- Measuring range to 10 TΩ
- Diagnostic function PI, DAR (MIT515) plus DD, SV and Ramp (MIT525)
- Li-ion battery, high capacity, fast charging
- Test category CAT IV 600 V
- Robust, impact-resistant outdoor carry case, protection class IP65
- Operational up to 3000 m above sea level
- Light and compact only 4.5 kg
- Measurement with discharged battery - with simultaneous charging at the mains

**MIT515**

**MIT525**



- Insulation measurement 100 V to 10 kV DC (MIT1025)
- Measuring range to 20 TΩ (MIT1025)
- PI, DAR, DD, SV and ramp test
- Battery and mains operation (while the battery is charging)
- Li-ion battery, high capacity, fast charging
- Quick charge function
- Automatic date function
- CAT IV 600 V
- Internal memory with data logger at 5-second intervals or real-time transmission via USB interface with one measurement per second

**MIT1025**



- Insulation measurement 40 V to 15 kV DC (MIT1525)
- Measuring range to 30 TΩ (MIT1525)
- PI, DAR, DD, SV and ramp test
- Battery and mains operation (while the battery is charging)
- Li-ion battery, high capacity, fast charging
- Quick charge function
- Automatic date function
- CAT IV 600 V
- Internal memory with data logger at 5-second intervals or real-time transmission via USB interface with one measurement per second

**MIT1525**

# Insulation test range

■ Function    □ Option    ▲ rechargeable batteries possible

	MIT400/2	MIT410/2	MIT420/2	MIT430/2	MIT481/2	MIT485/2	MIT2500	MIT515	MIT525	MIT1025	MIT1525
<b>Test voltages</b>											
10 kV/15 kV										■	■
5 kV								■	■	■	■
2.5 kV							■	■	■	■	■
1000 V	■	■	■	■	■	■	■	■	■	■	■
500 V	■	■	■	■	■	■	■	■	■	■	■
250 V	■	■	■	■	■	■	■	■	■		
50 V/100 V		■	■	■	■	■	■				
<b>Insulation - Test methods</b>											
Polarisation index		■	■	■	■	■	■	■	■	■	■
Dielectric absorption ratio		■	■	■	■	■	■		■	■	■
Step voltage/ramp									■	■	■
Dielectric discharge									■	■	■
<b>Further tests</b>											
Continuity check	■	■	■	■	■	■	■				
Frequency measurement		■	■	■	■	■	■				
Capacitance measurement			■	■	■	■	■	■	■	■	■
Voltage measurement	■	■	■	■	■	■	■	■	■	■	■
<b>Memory and interfaces</b>											
Data memory			■	■	■	■	■		■	■	■
USB interface									■	■	■
Bluetooth interface				■		■	■				
<b>Supply</b>											
Power supply									■	■	■
Rechargeable batteries	▲	▲	▲	▲	▲	▲	▲	▲	■	■	■
<b>Security</b>											
CAT IV/600 V	■	■	■	■	■	■	■	■	■	■	■
Calibration certificate included	■	■	■	■	■	■	■	■	■	■	■
Software included				■			■				
Power DB Lite									■	■	■
Power DB									□	□	□
Download manager				■	■		■		■	■	■
Guard technology							■	■	■	■	■

## Low resistance testing

### 10 A Micro-ohmmeter



**DLRO10**

The DLRO10 series offers a 0.1  $\mu\Omega$  resolution with a maximum capability of 2 k $\Omega$ . Fast testing ability means users can achieve results in less than 3 seconds. At only 2.5 kg, it is the smallest, lightest and simplest-to-use 10 A low resistance ohmmeter available. Uses easily interchangeable batteries.

### 10 A micro-ohmmeter with test results storage and downloading



**DLRO10X**

Having the same features as the DLRO10, additionally, the DLRO10X has the capability of measuring inductive loads such as transformers and motor windings. It has on-board memory, RS232 download capability, maximum setting and manual or automatic range control to the features of the DLRO10. Uses easily interchangeable batteries. DLRO10X can download results in real time and has on-board storage for later download to a PC.

### Ducter™ 2 A Low Resistance Ohmmeter



**DLRO2**

**DLRO2X**

DLRO2 is a tough, hand-held 2 A low resistance ohmmeter designed to provide fast, accurate and repeatable measurements, even in electrically noisy locations. For the utility or industrial user, a high level of safety is provided with a CATIII 600 V/CATIV 300 V rating to IEC61010.

DLRO2X comes with a brand new 'Difference Meter' that allows repetitive measurements to be easily compared with an initial reference measurement. DLRO2X is equipped with a noise rejection test mode so that it can work perfectly even in electrically noisy locations.

### Dual power 10 A micro-ohmmeter with IP65 rating



**DLRO10HD**

**DLRO10HDX**

DLRO10HD is a tough low resistance ohmmeter designed to withstand the inclement conditions of real world testing. Rated at IP65 when the lid is closed and IP45 when operating under battery power, the DLRO10HD has a resolution of 0.1  $\mu\Omega$ . There are also 2 power output levels to assist with condition diagnosis. One is limited to avoid heating the test sample, while the other maintains a set high power output. The DLRO10HDX also has the benefit of having results storage and downloading capabilities.

		DLRO10HDX	DLRO10HD	DLRO10X	DLRO10	DLRO2	DLRO2X
Nominal current		Up to 10 A	Up to 10 A	Up to 10 A	Up to 10 A	Up to 2 A	Up to 2 A
No of ranges with power limited to 0.25 W		6	6	6	6	6	6
No of higher power ranges		2	2				
Display		LCD Backlit	LCD Backlit	LCD Backlit		LCD Backlit	LCD Backlit
Results storage and download		■		■			■
Power supply	Mains	■	■	optional	optional	optional	optional
	Rechargeable battery	■	■	■	■	■	■
Weight		6.7 kg	6.7 kg	2.6 kg	2.6 kg	0.91 kg	0.91 kg

# Low resistance testing

Megger has launched a new range of duplex test leads to give you more flexibility. Get one set of tester end leads and attach any of the selection of probes and clips to the tough duplex connector, one of which can house an LED indicator. Used with the DLRO10 series, the indicator will warn you about connections to hazardous live voltages, will indicate continuity and will let you know when the test is completed and if it passed or failed the pre-set test limit.



FAR END	TESTER END	USED WITH	TEST CURRENT	SPECIAL FEATURE	LENGTH	PART NO.
Male duplex connector	2 hooks and plug	DLRO10 DLRO10X, DLRO10HD				
	10 A					
	Indicator LED in connection	1.5 m	1006-456			
				Indicator LED in connection	3 m	1006-458
				Indicator LED in connection	6 m	1006-459
	2 hooks	DLRO10 DLRO10X, DLRO10HD				
	10 A		1.5 m	1006-452		
					3 m	1006-454
					6 m	1006-455
					6 m	1007-024
	Female duplex connector with locking ring	DLRO10 DLRO10X, DLRO10HD	10 A	Lead extension	6 m	1006-460
Duplex probe	Female duplex connector with locking ring	DLRO10 DLRO10X, DLRO10HD	10 A	P and C probe spacing 6 mm	0.4 m	1006-450
Right angle duplex probe				P and C probe spacing 10 mm	0.4 m	1006-449
Concentric duplex probe				P and C probe spacing 3.8 mm	0.4 m	1006-448
Kelvin clip				Clip capacity 40 mm	0.4 m	1006-447
Kelvin clip touch proof insulated				Clip capacity 52 to 75 mm	0.4 m	1006-451
				In-line duplex locking connector	6 m	1006-443
Duplex probe	1 off 2 hooks and plug 1 off 2 hooks	DLRO10 DLRO10X, DLRO10HD	10 A	In-line duplex locking connectors, 1 with indicator LED	1.5 m	1006-444
Kelvin clip				In-line duplex locking connectors, 1 with indicator LED	3 m	1006-462
Kelvin clip touch proof insulated				In-line duplex locking connectors, 1 with indicator LED	3 m	1006-461
Heavy duty Kelvin 10 cm g-clamp	2 spades		100 A		5 m	242104-2-16
					8 m	242104-2-16
HD 60 mm current clips and 22 mm potential clips	2 hooks	DLRO100, DLRO200, DLRO600				
	600 A	25 mm 2 csa	5 m	1008-029		
				50 mm <sup>2</sup> csa	5 m	1008-028
				70 mm <sup>2</sup> csa	10 m	6220-756
				95 mm <sup>2</sup> csa	15 m	6220-757



## Motor and generator testing

Megger Baker Instruments are designed and manufactured with the purpose of testing and maintaining rotating machinery. They deliver predictive maintenance results with trending information that enables industrial maintenance teams to monitor plant and predict motor failures ahead of time to avert costly downtime.

### Automated static motor analyser

- Offer a choice of manual, automatic or sequenced testing
- Available in versions that support high voltage testing up to 4 kV, 6 kV, 12 kV, or 15 kV
- Couple the ADX with a PPX to increase test voltages up to 40 kV

The Megger Baker ADX is an innovative and transformational leap forward for motor testing in today's demanding workplaces. Developed using Linux on an Android operating system, the ADX software is easily updated via a Lan or Wi-Fi connection. The large 10.4-inch touchscreen is tough and daylight viewable.

The ADX has IEC61010 safety compliant, combined high voltage / low voltage detachable Kelvin test leads, rated at 16 kV with a large jaw opening.



**Baker ADX**

### Static motor analyser

- Available models: 2 kV, 4 kV, 6 kV, 12 kV and 12 kV high output
- Test types: resistance, megohm, DA, PI, DC step voltage, DC HiPot
- Surge (IEEE and IEC compliant)

The Baker AWA-IV automatically performs repeatable, user-programmable tests to thoroughly assess the strength of a motor's insulation and circuit. It is the only high voltage test instrument that a user can program to perform specific sets of insulation tests prior to being in the field, and then use as programmed in the field. The AWA-IV is also used to assure the quality of motor rebuilds or new production motors before they are placed into service.



**Baker AWA-IV**

- Available models: 4 kV, 6 kV, 6 kV High Output, 12 kV, 12 kV high output, 15 kV and DX15A armature tester
- Test types (some tests require optional upgrades): resistance, capacitance, inductance, megohm, DA, PI, DC step voltage, DC HiPot, surge (IEEE and IEC compliant), partial discharge (PD) on surge

The Baker DX can find early indications of insulation weaknesses and faults in windings, between phases, coil-to-coil and in groundwall insulation. It can identify if contamination is impacting insulation strength and detect motor circuit problems such as feed cable insulation weakness, motor imbalance, open circuits or high resistance.



**Baker DX**



# Rotating machinery testing



## Dynamic motor analysis system

The Baker EXP4000 monitors many different parameters calculated from an in-service motor's voltages and currents to separate mechanical and electrical issues that may be present in a motor-machine system. Using advanced software algorithms, the EXP4000 is designed to pinpoint challenges across the system, including those with the power supply, the variable-frequency drive, the motor, and the load placed on the motor.

Test domains: Power quality, machine performance, current, spectrum, torque, variable-frequency drives, continuous monitoring, transient analysis (e.g. startup), motor efficiency.

The Baker EP1000 Dynamic Motor Link can be installed in motor control cabinets (MCC) to provide a permanent, rapid-hookup port for the EXP4000.

**Baker EXP4000**

## Hand-held static motor tester



- Full colour graphic display
- 3-phase insulation resistance
- Measurement and correction for insulation resistance
- Guard terminal
- DLRO four-wire (Kelvin measurement)
- Continuity testing and diode testing
- Motor direction of rotation
- Capacitance and inductance
- CAT III 600 V up to 3000 m
- Protection class IP54

**MTR105**

The MTR105 is a dedicated static motor tester with Megger's tried and trusted suite of insulation resistance tests (IR), plus all the great traditional features and reliability of Megger's testers. The MTR105 takes the test abilities of Megger's proven IR test instruments and adds the DLRO four-wire Kelvin low resistance test and inductance and capacitance tests to provide a versatile motor tester packaged into a robust, hand-held instrument, which up to now has not been available.

## Power packs



- Available models: PPX30 (30 kV) - PPX40 (40 kV) - PPX30A (30 kV with armature testing capability)

For high voltage motors and generators and large form-wound coils, the Baker PPX series extends HiPot and surge test voltages up to 40 kV. The Power Packs are designed to be used in conjunction with a Baker AWA-IV (6 kV or 12 kV), or a Baker DX.

**Baker PPX Power packs**

## Online motor analyser



The Baker NetEP is a permanently installed, fully automated machine system monitoring solution. It continuously acquires health and performance data on up to 32 electric motors and the rotating machine systems they operate. The system helps reduce costly unplanned downtime by providing information that improves maintenance decision making and planning. The dashboard display of the NetEP's associated software indicates motors that are in an alarm condition.

**Baker NetEP**

# DC High Current Circuit Breaker Tester

Megger has acquired the BALTO product line from STEVO Electric bvba (Belgium). The BALTO products, continually developed since their launch in 2003, are used to test the operation of DC high-speed electrical circuit breakers. The BALTO products extend Megger's offering to the rail and metro industry, which is transitioning to more electrification, digital communication and control systems.



**BALTO Modular**

## BALTO Modular

- Supports from 4000 A and extended up to (5 x 4000 A Current Generators) 20000 A and up to 40000 A in a Master/Slave configuration
- Power source from batteries, buffer through ultracaps
- Current Generator: DC/DC current converters
- Current rising slope according to IEC 61992-2 (Traction Power Substations) & IEC 60077-2 (Rolling Stock)
- Adjustable parameters of the Circuit Breaker Trip Current
- USB & Ethernet RJ45 Interfaces
- BALTO Win – Communication software for PC
- Test Reports
- Bespoke connection for high speed circuit breakers
- Ergonomic design
- Registered International Patents

The Megger Balto DC High Current Circuit Breaker Tester was developed to generate very high and precise DC test currents in order to carry out functional tests on DC high speed circuit-breakers. These very high currents are injected in the main circuit of DC high speed circuitbreakers and allow control of the entire circuit including the measurement elements, current converters and protection relays.



**BALTO Compact**

## BALTO Compact

- Max. 4000 A
- Power source from batteries, buffer through ultracaps
- Current Generator: DC/DC current converters
- Current rising slope according to IEC 61992-2 (Traction Power Substations) & IEC 60077-2 (Rolling Stock)
- Adjustable parameters of the Circuit Breaker Trip Current
- USB & Ethernet RJ45 Interfaces
- BALTO Win – Communication software for PC
- Test Reports
- Bespoke connection for high speed circuit breakers
- Ergonomic design
- Registered International Patents

The Megger Balto Compact is useable for up to 4000 A which meets the challenges of the manufacturers and users of DC high speed circuit breakers. It can generate very high and precise DC test currents in order to carry out functional tests on DC high speed circuit breakers, specifically at rolling stock, tramways and primary infrastructure. It is also suitable for on-board maintenance in marine applications.

# Power quality

With the increased sophistication of electrical and electronic equipment, and the new micro generation systems being added to the grid, there is now more attention being paid to the quality of supply. Power quality surveys on electrical noise, lamp flicker, load balancing, power factor correction and motor in-rush studies can all be carried out with Megger power quality analysers.



## Power quality analysis system

The MPQ1000 hand-held power quality analyser has features that make it ideal for troubleshooting, compliance testing and energy audits. Auto CT identification eliminates potential errors due to the wrong CT range settings. The analyser will automatically identify the CT and verify it is connected correctly. This means you can be confident you will have the correct data.

- **Auto CT identifies the current clamp that is connected to the analyser as well as the range to which the CT is set.**
- **On-board data analysis can compare results against canned or custom standards. Create your own templates for your internal company standards.**
- **Configuration verification identifies and notifies you if the product has been connected incorrectly.**
- **It has SD card support, USB card support and USB communications, as well as Ethernet connections, making it versatile.**



The MPQ2000 portable power quality analyser has features that make it ideal for testing power quality in any environment, including rugged, weatherproof hardware, and the ability to power off Phase A or auxiliary power.

But the hardware is not all that it's about. Behind the sturdy exterior is an intelligence that is focused on minimising errors and making your testing more efficient, with industry-leading software that enables you to quickly and easily analyse your results.

	MPQ1000	MPQ2000
Voltage inputs	4 with common neutral	4 isolated channels
Current inputs	4	5
Battery powered	■	■
Powered off of A phase		■
Case type	Hand-held	Weatherproof
Weight in kg	1.8	2.3

## Medium voltage switchgear substation surveying system

The PD Scan is a handheld, pre-screening tool suitable for on-line detection of PD activity in MV cables and plant. PD activity is widely regarded as an indication of incipient faults in the insulation and seen as one of the best 'early warning' indicators of the deterioration of medium and high voltage insulation. Faults in MV plant are, in most cases, cost expensive. A breakdown in, say, a termination, can lead to damage of the entire cubicle. In addition, faults in MV plant can lead to long outage times. With help from the PD Scan, such faults can be prevented.

The intuitive operating system and the large touchscreen colour display makes it one of the most user-friendly hand-held online PD units on the market.



# Time domain reflectometry

## Dual channel LV cable fault locator

Offering a CAT IV 600 V safety rating, the TDR2050 is perfect for chasing down faults on power circuits such as street lighting. It is IP54 rated and the step function trace improves the near-end performance of the TDR2050 by preventing the trailing edge of the pulse masking faults. Other features include 'Auto-find', which takes you to the major events on the cable, and the 'Find-end' function, which identifies the end of the cable and measures its length. Distance dependant gain is a major benefit in long cable performance.



**TDR2050**

## Single channel LV cable fault locator

A very capable TDR for identifying and locating faults on metallic cables. The TDR1000 is suitable for use on both dead and live cables without a blocking filter, up to CAT III 150 V phase-to-earth. Using a 2 ns pulse, the TDR1000/3P's near end performance is exceptional while offering a maximum range of 5 km.



**TDR1000/3**

- Minimum resolution of only 0.1 m for troubleshooting very close to the cable end
- Maximum measuring range up to 5 km
- Output resistances of 25, 50, 75 and 100  $\Omega$  and a shortening factor between 0.2 and 0.99
- Trace hold function allows you to save a route on the screen
- High-resolution display
- Very easy operation with joystick
- Auto selection of gain and pulse width
- Ultra-fast pulse for near end fault identification
- Ideal for all copper data cables
- IP54 protection class for harsh environments
- CAT IV 600 V input protection
- Auto set-up mode for instant, easy use
- 'Auto-find' and 'Find-end' functions help find the fault fast
- Trace tagging facility that allows a name to be saved with the trace
- Distance dependent gain to counteract signal attenuation
- Step function to improve detection of near end faults

**TDR500/3**





## Earth ground testers



All models include these features:

- Extra large selector switch
- Extra large, clear display for easier operation in outdoor conditions
- Simple one-button operation
- Battery powered with a bar graph that updates battery strength
- Noise reduction up to 40 V peak to peak
- Safety rating of CAT IV 100 V
- IP54 rated (water/dust ingress) for extra protection in harsh conditions

**DET3TD** - offers a complete kit for customers wishing to conduct earth electrode testing using the two- and three-pole techniques.

**DET3TC** - when used with the optional ICLAMP, it allows fall of potential testing using the ART technique without needing to disconnect the electrode under test.

**DET4TD2** - is a complete earth testing kit for users needing the flexibility to use either the two- and three-pole electrode techniques or the four-pole soil resistivity test.

**DET4TR2** - is similar to DET4TD2, with the added advantage of using rechargeable batteries. You can also get an adaptor to charge your tester from your vehicle.

**DET4TC2** - is a four-pole tester with extended resistance range and variable test frequency. Use it for ART testing, two- or three-pole testing, four-pole resistivity testing and stake-less testing.

**DET4TCR2** - is similar to DET4TC2, with the added advantage of using rechargeable batteries. You can also get an adaptor to charge your tester from your vehicle.

**Each instrument includes everything you need to test:**  
Comes complete with test leads, stakes, batteries, calibration certificate and rugged polypropylene carry case.

**DET3 & 4 Series**

## Advanced earth tester



The DET2/3 is a robust and compact automatic earth (ground) test instrument designed to measure earth electrode resistance and soil resistivity. For use on large or more complex earth systems, which include communications earth systems and difficult test environments, it can be used to test in accordance with BS 7430 (earthing / grounding), BS-EN-62305 (Lightning Protection), BS-EN-50122-1 (Railway Applications), and IEEE Standard 81.

**DET2/3**

## Earth resistance clamp testers

Earth resistance clamp testers are suitable for measuring the earth resistance of installations such as buildings, pylons and RF transmitter sites and for inspection of lightning protection systems.



- 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  $\Omega$  to 1500  $\Omega$
- Measures true RMS ground leakage current from 0.5 mA RMS to 35 A RMS
- Automatically self calibrates
- High and low alarms
- Memory and Bluetooth downloading
- CAT IV 600 V safety rating

**DET14C**

**DET24C**

## Basic insulation testers and impedance testers

MIT230 Series is one of the smallest insulation testers available



MIT230

### Insulation testing

- A choice of two or three test voltage ranges providing an ideal solution to most low voltage insulation testing applications
- Insulation measurement up to 1000 MΩ on all ranges
- Auto discharge function
- 1000 V insulation test ranges have a high voltage warning prior to test voltage being applied

### Continuity testing

- Automatic continuity testing is performed at 200 mA to ensure compliance with international
- Safety interlock to prevent unsafe connection of the test leads
- Safe contact detector keeps you and your instrument safe during continuity testing if it's accidentally connected to a live circuit
- Live voltage warning alerts the user to a circuit voltage over 25 V

requirements - no need to press the test button

- Measure up to 100 Ω on continuity, of which 0-10 Ω is performed at greater than 200 mA
- Lead null is possible up to 9.99 Ω ensuring the ability to null standard as well as fused test leads
- Input voltage detection on all ranges
- Continuity buzzer provides a means of rapid cable testing and circuit identification
- The buzzer operates at a 5 Ω threshold

when insulation testing

- Safety lockouts
  - Prevent continuity testing on live circuits
  - Prevent insulation testing when circuit voltage is greater than 50 V
- Hands-free operation



MIT300

## High current earth loop impedance tester



The LT300 is a two-wire operation offering high current loop testing over a wide range of frequencies: 16 Hz, 33 Hz, 50/60 Hz, 125 Hz or 400 Hz. Operational supply range extends from 50 V to 550 V. Two loop impedance ranges are provided.

20 Ω - Resolution to 0.01 Ω  
200 Ω - Resolution to 0.1 Ω

LT300

## Impedance meter



With a test current of up to 1 kA, the NIM1000 measures the network impedance of the phase and neutral conductors to the 10th harmonic. It highlights load-sensitive and neutral faults and detects poor contacts and unseen problems. It is also useful for measuring the earth loop impedance close to the source of supply.

NIM1000

# Earth loop impedance testers, residual current device testers & multifunction testers

## LTW Series earth loop impedance testers

The 2-wire non-tripping earth loop impedance testers verify the loop impedance of a live electrical circuit, i.e. without the need to disconnect the electrical supply. The new LTW300 series instruments offer a 2-wire loop testing solution that does not trip 30 mA RCDs and can be used on a wide range of voltages.

The range consists of:

- **LTW315 - 2-wire loop impedance measurement**
- **LTW325 - 2-wire + maxZ + (R1+R2)**
- **LTW335 - 2-wire + maxZ + (R1+R2) + download**

**LTW315**

**LTW325**

**LTW335**



## RCDT Residual current device testers



**RCDT**

The RCDT tests not only type A and type AC RCDs, but also the selective (time-delayed) variants of both types, performing  $\frac{1}{2}I_n$ ,  $1I_n$  and  $5I_n$  tests on RCDs rated at 30 mA, 100 mA, 300 mA and 500 mA tested at  $0^\circ$  or  $180^\circ$ .

The RCDT320 offers additional tests for RCDs rated at 10 mA and 1000 mA.

Touch voltage is measured at the start of a test, and will automatically inhibit if it exceeds the preset level. Touch voltage inhibit is selectable from 25 V to 50 V.

Auto RCD testing – RCDT320 will automatically cycle through the  $\frac{1}{2}I_n$ ,  $1I_n$  and  $5I_n$  tests at  $0^\circ$  or  $180^\circ$  recording the results, so you can stay with and reset the RCD. This means the job gets done faster, saving not only your time but your legs as well!

Ramp testing to measure the trip current of an RCD – the test current is slowly increased from  $\frac{1}{2}I_n$  to  $1I_n+10\%$ . The trip current is held on the display, making it quicker and easier to diagnose nuisance tripping.

**These safety features look after you and the instrument:**

- Safety interlock to prevent unsafe connection of the test leads
- Test inhibit, if the supply voltage exceeds 280 V
- 3-phase safe, so even when connected across phases, both you and the instrument will remain safe
- LED connection indicators display the correct test lead connection, making sure it is right first time

## MFT Series multifunction testers

- Voltage TRMS up to 600 V
- Phase rotation indication
- Frequency 15 Hz to 400 Hz
- Continuity 15/200 mA with limit alarm
- Insulation 100 V, 250 V, 500 V, 1000 V
- Loop impedance with True Loop™
- True Loop™ test with patented Confidence Meter™ (MFT-X1)
- 3-wire no-trip test
- 2-wire no trip (no neutral required)
- True Loop™ with visible measurement analysis (MFT1845+)
- Programmable Fi/RCD test current
- Measured value memory 1000 results (MFT1835 & 1845+)
- Bluetooth interface (MFT1835/ MFT1845+/MFT-X1)
- 6 mA DC RCD test for EV charging stations (1845+/MFT-X1)



**MFT-X1**

**MFT1815**

**MFT1825**

**MFT1835**

**MFT1845+**

**MFT1815****MFT1825****MFT1835****MFT1845+****MFT-X1****Insulation measurement**

50 V					■
100 V			■	■	■
250 V	■	■	■	■	■
500 V	■	■	■	■	■
1000 V	■	■	■	■	■
Acoustic signal adjustable		■	■	■	■

**Continuity and resistance measurement**

200 mA test current	■	■	■	■	■
15 mA test		■	■	■	■
Acoustic signal adjustable	■	■	■	■	■
Continuity test with automatic polarity reversal	■	■	■	■	■

**Loop impedance measurement**

True Loop™ test with patented Confidence Meter					■
New 3 wire non-trip technology (Lo Current)				■	■
New confidence meter measurement				■	■
Fast loop measurement				■	■
3-wire test without FI/RCD tripping (L-N-PE)	■	■	■	■	■
2-wire test without FI/RCD tripping (L-PE)	■	■	■	■	■
2-wire test with high current (L-L and L-N)	■	■	■	■	■
2-wire test outer conductor-outer conductor (L-L)	■	■	■	■	■
Display Short circuit current up to 20 kA	■	■	■	■	■

**FI/RCD audit**

1/2 x IΔN FI/RCD examination	■	■	■	■	■
1 x IΔN FI/RCD examination	■	■	■	■	■
2 x IΔN FI/RCD audit		■	■	■	■
5 x IΔN FI/RCD audit	■	■	■	■	■
Auto FI/RCD check	■	■	■	■	■
Increasing current (ramp test)	■	■	■	■	■
Type AC (standard) FI/RCDs	■	■	■	■	■
Type A (DC pulse) FI/RCDs	■	■	■	■	■
Type S (selective) FI/RCDs	■	■	■	■	■
Type B/B+ (sensitive to universal current) FI/RCD		■	■	■	■
EV RCD				■	■
Programmable FI/RCD test current		■	■	■	■
Display of the touch voltage	■	■	■	■	■
Contact voltage limit value sett. 25/50 V	■	■	■	■	■
FI/RCD tests 2-pole without N or PE	■	■	■	■	■
Testing with reversed polarity possible	■	■	■	■	■
10 mA FI/RCD	■	■	■	■	■
30 mA FI/RCD	■	■	■	■	■
100 mA FI/RCD	■	■	■	■	■
300 mA FI/RCD	■	■	■	■	■
500 mA FI/RCD	■	■	■	■	■
1000 mA FI/RCD		■	■	■	■

**Earth measurements**

Earth measurements 2-pole or 3-pole		■	■	■	2-pole
Earth measurements with 1 current clamp (ART)				■	
Earthing measurements with 2 current clamp (ground loop)				■	
Measuring voltage limit value sett. 25/50 V		■	■	■	
Earth fault voltage test		■	■	■	

**Other functions**

Voltage measurement (L-N, L-PE, N-PE)	■	■	■	■	■
Frequency measurement	■	■	■	■	■
Current measurement with I Clamp		■	■	■	■
Phase rotation indication	■	■	■	■	■
Temperature measurement with external sensor, mV input		■	■	■	■
Illuminated LC display	■	■	■	■	
Automatic switch-off (Auto-Power-Off)	■	■	■	■	■
Calibration certificate included in delivery	■	■	■	■	■
Operation with batteries or accumulators (NiMH)	■	■	■	■	■
Ni-Cad batteries included	■	■	■		
Li-Ion rechargeable batteries included			■	■	■
Internal measured value memory, Bluetooth® download			■	■	■
Optional software (CertSuite™ Software compatible)				■	■
Customer upgradeable firmware via microSD card					■
Full colour TFT bonded display					■
IEC LR6 type AA alkaline					■



# Thermal camera, isolation test kits & multimeters



## Thermal imaging camera

- Image acquisition frequency 9 Hz
- Thermal sensitivity (NETD)  $\leq 150$  mK
- Hot and cold spot measurement and tracking
- 6000 image memory, date and time stamp
- Li-Ion battery, rechargeable
- USB interface for downloading images from SD memory
- Automatic shutdown (10 minutes inactivity)
- 32x31 pixels 2.2 inch ( 55.88mm) TFT-LCD colour screen
- Image blending function
- Visible and infrared image from 0 to 100%

**TC3231**



## Voltage tester

- 12 - 1000 V AC
- 12 - 1500 V DC
- Continuity test function with visual and acoustic indication
- LED and LCD Display
- CAT IV/1000 V
- Voltage indication
- Single pole voltage test
- Phase rotation indication
- Integrated torch light
- IP64 rating



## Test unit for two-pole tester

- Step LED indicate test voltages 50 V, 100 V, 230 V, 400 V, 690 V
- Simulates AC voltage with 50 Hz
- The compact housing contains a magnetic holder
- Automatic switch-on and switch-off
- Battery level warning

**MPU690**



## Voltage detector

- Hazardous area EX rated
- AC non-contact
- 12 V – 1000 V voltage range
- Visual, audible and vibration warning
- Built-in bright-white LED torch



## All-in-one True RMS Electrical Tester

- LED and LCD display with self-test
- Detachable test probes
- AC/DC voltage to 1000 V
- 200 A AC measurement
- True RMS on ACV/ACA
- Measures voltage without batteries

**MET1000**

**VF6 EX**

## Multimeters

- 2000 count digital display (AVO210)
- 4000 count digital display (AVO215)
- 6000 count backlit digital display (AVO410)
- 1000 V DC/750 V AC ranges (AVO210/410)
- 600 V DC/AC ranges (AVO215)
- 10 A AC/DC ranges
- Resistance, frequency, and capacitance ranges
- CAT III 600 V safety rating (AVO210/215)
- CAT IV 600 V safety rating (AVO410)
- True RMS reading on AC mode



**AVO210**

**AVO215**

**AVO410**

## Clamp meters



### 200 A AC open jaw clamp multimeter

- 0.1 V to 1000 V auto-ranging AC and DC voltage measurement
- 0.1  $\Omega$  to 20.00 M $\Omega$  resistance range
- Continuity buzzer and diode check
- Non-contact detection of AC voltage
- CAT IV 600 V

**DCM320**



### 600 A AC/DC 600 V AC/DC clamp multimeter

- DC current range
- Frequency counter
- Analogue bar graph
- Back light
- Large jaws
- Auto off to conserve batteries

**DCM340**



### Solar clamp meter

- 2000 V DC
- TRMS 1500 V AC / 1500 A AC/DC
- Smart Hold & auto ranging
- MIN/MAX Hold & Inrush Current
- Megger Link™ APP compatible
- CAT IV 600V / CAT III 1000V
- Data logger
- PV test leads with MC4PV plugs

**DCM1500S**



### 1500 A TRMS clamp multimeter

- DC and AC current measurement
- True RMS measurement
- Large jaw size improves safety when working with uninsulated conductors
- 750 V AC and 1000 V DC
- Resistance, continuity and frequency measurement
- Peak, minimum, maximum and data-hold functions

**DCM1500**



### Leakage current clamp

- 6 mA, 60 mA, 600 mA, 6 A, 60 A, 100 A, TRMS value reading
- Automatic or manual
- 0.001 mA Resolution
- Up to 100 A range for standard AC current measurements
- Low pass filter to aid stability of readings
- Auto-hold, data-hold and peak-hold
- 40 mm clamping jaw

**DCM305E**



### Power clamp

- Up to 1000 V/1000 A (AC/DC)
- Resistance 100 k $\Omega$
- True RMS, CAT IV 600 V Rating
- Phase rotation indication
- Measures frequency, capacitance, power factor, harmonic, watt to 1 MW
- Temperature to 1000 °C
- Bluetooth/Megger Link™ APP

**DPM1000**

## Portable appliance testers

### Hand-held appliance tester

- Simple 'tick or cross', 'pass or fail' indication plus measurement
- Tough, rubber armour with built-in front cover, hardened, scratch-proof display window
- Includes 250 V insulation and leakage testing for safe IT testing and surge protected devices
- Testing portable and fixed electrical equipment
- 10 mA and 30 mA portable RCD lead testing (PAT150)
- Adjustable PASS test limits (PAT150)
- Substitute and mains-powered leakage testing (PAT150)
- Battery powered with rechargeable options



**Included accessories PAT120:** Test leads with test probe and clamp, adapter for extension cable, hard-shell case

**Included accessories PAT150:** Test leads with test probe and clamp, adapter for extension cable, mains connection lead, hard carry case

**PAT120**

**PAT150**

### Full database driven portable appliance testers

- Large, illuminated, coloured display with pass/fail indication
- Up to 100 customers database with 2000 locations possible for each customer
- Test item database - up to 10 000 tests results
- Bidirectional database exchange with PC software Megger dokuSTORE 4.0
- Adjustable limit values and test times
- Login to the test device with a user name and personal PIN and for legally compliant documentation
- Complete database backup and, if necessary, restoration via USB memory stick
- PAT420: 200 mA+10 A+25 A Protective conductor current
- PAT450: 200 mA+10 A+25 A protective conductor current and insulation test with 1500 V and 3000 V
- Barcode scanner/RFID reader and printer can be connected via USB
- Five soft keys for quick access to frequently used functions



**PAT410**

**PAT420**

**PAT450**

### Megger Link™ APP

- Available from Apple App or Google Play stores
- Download to your phone or tablet at your choice
- Once paired-up, you can manage your test instrument from your mobile device
- Test data downloadable
- Up to 4 test instruments can be displayed at any one time, with their corresponding measurements and line graphs displayed simultaneously
- The Share function allows you to send a .csv file to your computer







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