Electrical Test Instruments

Megger



New products



DCM305E Earth Leakage Clampmeter

Designed to check earth leakage currents. See page 21



DET2/3 Advanced Earth Tester

Robust intrument to measure Earth Resistance and Soil Resistivity. See page 25



MFT1800 series multifunction installation testers

 Offering increased functionality and better value. See page 14



AVO800 series multimeters

 High end multimeters designed with the electrical contractor in mind. See page 18

Power on for 130 years

Since 1889 Megger, and its predecessor companies, has been helping electrical engineers keep the power on by developing and manufacturing portable test and measurement tools. Insulation testers were first to be developed; this lead to the registration of the Megger brand as long ago as 1903.

The original insulation testers came in two boxes, separating the voltage generation from the measurement circuit, to avoid electromagnetic interference problems. It was some time later that they were combined in a bakelite box with the iconic handle for driving the dynamo.

Five years later the low resistance ohmmeter (LRO) was invented, these became known the world over as Ducter testing. Housed in wooden cases, these testers had a long and admirable history, in fact Megger has been given an early LRO that was still in calibration in 2006.

Trying to decide which Megger tester is best for you?

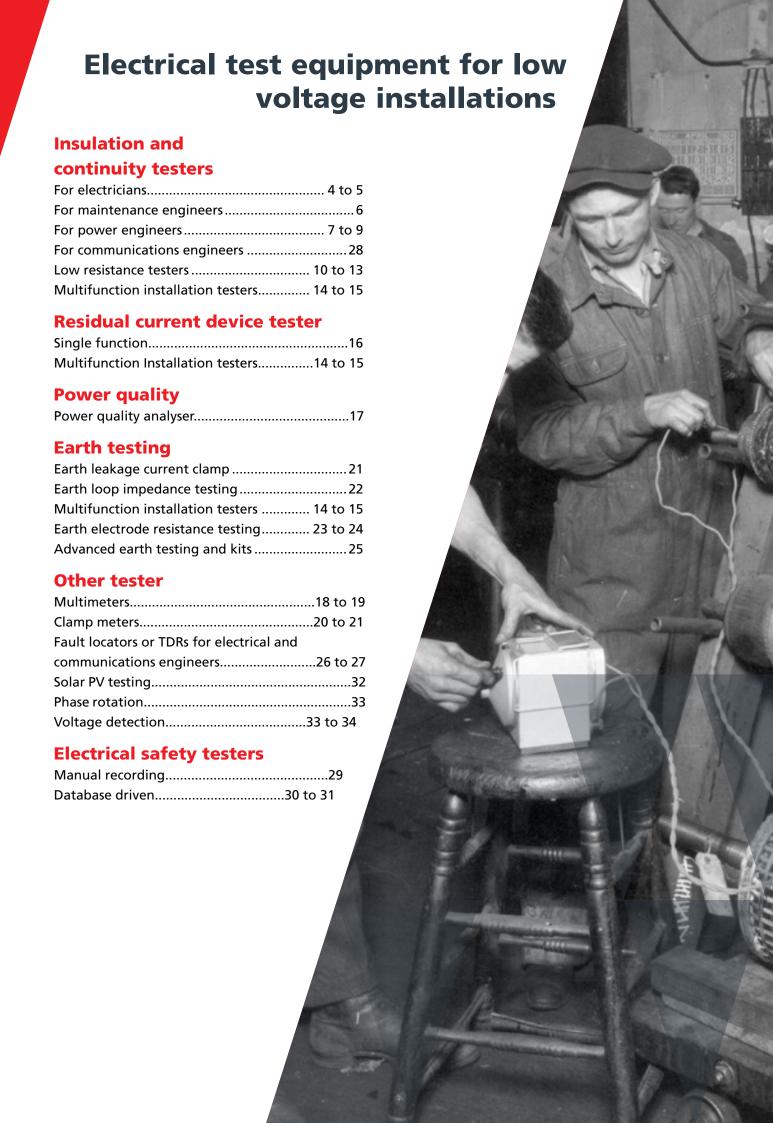
Call your local Megger distributor.

In 1923 Megger was brought the idea of the multimeter by Donald Macadie. Measuring amps volts and ohms in a single instrument was revolutionary and the AVOmeter model 1 was born. 85 years later the last model 8 mark 7 came off the production line and in this catalogue Megger is launching the AVO800 range of multimeters.

George Tagg, working at Megger in the 1960's published a seminal paper on earth testing His work was concerned particularly with earth electrode systems that covered a large area. Today with the help of digital electronics, and revolutionary electronic components, Megger is continuing its mission of making your life easier by developing more powerful and safer testers that are light to carry, comfortable to hold and easier for you to use, helping you to Power on.

They'll talk through your needs and the way you work and help you make the right decision for your business.

Call +44 (0)1304 502 102



Insulation and continuity testers

MIT200 series

MIT200 Series is one of the smallest insulation testers available

Both products have a combination of digital readout and analogue display, using Megger's patented DART display technology. The display includes a clear, accurate digital readout, and an analogue pointer response for evaluating circuit charge and discharge characteristics.

The tough ABS instrument housing is designed to withstand the rigours of hard use, whilst small enough to drop into your pocket when not in use. A low battery warning indicator gives advanced warning of exhausted batteries.

Insulation testing

- There is 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 M Ω on all ranges
- Auto discharge ensures all circuits are safely discharged after testing
- 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 requirements. No need to press the test button
- All instruments will 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

Accessories



1002-491 Red and black probes and clips



1002-015 2-wire 500 mA fused test lead set





Special features

- Exceptional value for money
- Pocket sized tester
- Live circuit protected

		MIT200	MIT210	MIT220	MIT230
Test volage	1000 V				
	500 V	•		•	•
	250 V			•	
Insulation resitance to 1000 $\text{M}\Omega$		•	•	•	•
Coninuity measurement at 200 mA		•	•	•	•
Fast buzzer range		•	•	•	•
Voltage detection				•	
Intelligent safety sy	ystem	•	•	•	•
Display backlight	Display backlight			•	
CAT III 600 V		•	•	•	•
Warranty upgrades years FREE	able to 3	•	•	•	•

Insulation and continuity testers

MIT300 series

The Megger insulation testers are like no other tester you have used

Megger insulation testers will take the bashing that testers receive when they are on site

They are rubber armoured and have an integral solid lid to protect the display. The heavy-duty hinge allows the lid to be locked away beneath when in use, making it easy to use and impossible to lose. And you don't need to pull out the test leads to shut the lid.

Megger MIT insulation testers are easy to use and quick to learn

There are no buried functions, so it is easy to use these insulation testers. The colour coding helps test selection, speeding up testing time and helping you identify faults fast. The quick start guide in the lid keeps all the basic information at hand if you need it.

Your safety is Megger's number one concern. These safety features look after you and the tester:

■ Safety interlock to prevent unsafe connection of the test leads

- Safe contact detector keeping you and your tester 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 when insulation testing
- Safety lockouts
 - Prevents continuity testing on live circuits
 - $\,-\,$ $\,$ Prevents insulation testing when circuit voltage is greater than 50 V

Hands free operation

MIT300 series insulation testers are well balanced to hang comfortably around your neck enabling hands free operation when you need it. The continuity test and buzzer start automatically when you connect to a circuit, saving you time. Insulation tests can be started using a switched probe or the test button on the front of the tester.



Accessories



1002-491 Red and black probes and



2 wire test lead set



1002-015 2-wire 500 mA fused test lead set



		MIT300	MIT310	MIT320	MIT310A Analogue	MIT330
Insulation testing	250 V		•			
	500 V		•			
	1000 V		•			
	Test range	1000 MΩ	1000 MΩ	1000 MΩ	1000 MΩ	1000 MΩ
	Insulation limit alarm 0.01 $M\Omega$ to 1000 $M\Omega$					
Continuity testing	Continuity to 100 Ω		•			
	Continuity buzzer		•			
	Lead null to 9 Ω		•		<¹/ ₂ Ω	
	Adjustable buzzer 1 to 100 Ω					
	Audible buzzer disable					
Voltage measurement	Volts AC / DC		600 V	600 V	600 V	600 V
Resistance measurement	10 Ω to 1 M Ω range			•		
	0 Ω to 2 $K\Omega$ range				•	
Features	Voltage warning					
	Default voltmeter		•	•	•	•
	Backlit display					
	Backlit selector ranges			•		•
	Locking test button					
	Auto power-down		•			
	Switched test probe					
	Data storage					
	Download via USB port					
	IP54 weatherproof					
	Accepts rechargeable batteries		•			
Included accessories	2 wire lead set					
	Free calibration certificate		•			
	Warranty upgradeable to 3 years FREE		•			

Insulation and continuity tester for electrical and industrial maintenance

MIT400/2 series

Features include:

- Designed for the electrical and industrial markets
- Stabilised insulation test to -0% +2% test voltage
- Variable insulation test voltage from 10 V to 1000 V
- Single range, faster continuity testing from 0.01 Ω to 1 M Ω
- Insulation testing up to 1000 V and 200 GΩ in a hand held instrument
- Rechargeable options for mains and car charging
- Insulation testing to 200 GΩ with Feedback control for tight test voltage control
- 600 V Trms AC and DC voltage measurement
- Test result storage and Bluetooth® downloading
- Live circuit detection and protection
- CATIV 600 V application & IP54 environmental protection

A range of insulation and continuity testers in an ergonomic design with the latest measurement techniques and live circuit protection.

The MIT400/2 series insulation and continuity testers now have faster continuity testing and stabilised insulation test voltages for more accurate and productive installation testing.

Insulation testing has the addition of feedback control to stabilise the test voltage to less than +2% over voltage, for safer and more accurate measurement.





Variable test voltage is also available from 10 V to 1000 V.

Continuity testing is now fully automatic from 0.01 Ω to 1 M Ω with fast contact detection whilst continuously protecting against accidental contact with live circuits.

The MIT400/2 series and the diagnostic insulation tests, such as Polarisation Index and Dielectric Absorption Ratio, it offers, allow trending of the performance of motors. This makes it ideal for the engineer working in the industrial maintenance sector who needs to plan maintenance or some more solid evidence when taking a motor out of service.

Accessories



2 wire test lead set



1002-015 2-wire 500 mA fused test lead set



MIT2500 only



1007-464 Charger kit MIT430/2 and MIT2500 only

Hand-held insulation and continuity tester for higher voltage applications

MIT2500

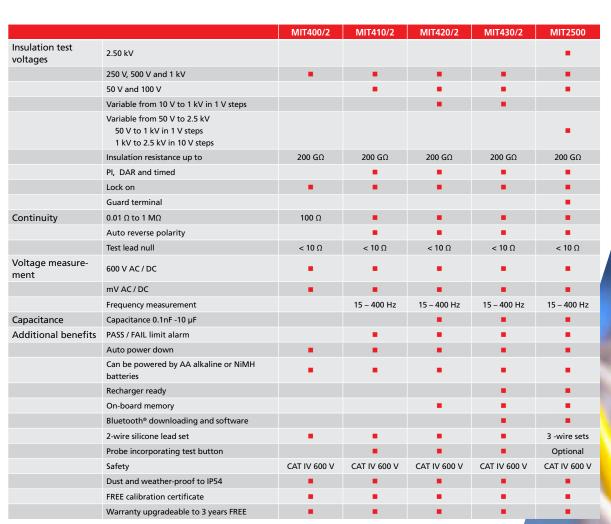
- Tough enough for the industrial and electrical maintenance
- Insulation testing up to 2500 V and 200 GΩ in a hand held instrument
- Guard terminal for high insulation resistance accuracy
- Variable insulation test voltage from 50 V to 2500 V
- Stabilised insulation test to -0% +2% test voltage
- Single range, faster continuity testing from 0.01 Ω to 1 M Ω
- Diagnostic testing with Polarisation Index (PI) and Dielectric Absorption Ratio (DAR)
- Rechargeable options for mains and car charging
- Test result storage and Bluetooth® downloading
- Live circuit detection and protection
- CATIV 600 V application & IP54 environmental protection

The MIT2500 is the smallest 2500V hand held insulation tester on the market

Additional "Variable Voltage" allows any voltage from 100 V to 2500 V to be selected.

Output voltage is stabilised to -0% +2% for accurate test measurement without risking over-voltage on the circuit.

Complete with Polarisation Index (PI) and Dielectric Absorption Ratio (DAR) testing, test result storage and downloading.



High voltage insulation testers

MIT515, MIT525, MIT1025, MIT1525

High voltage insulation testers that have no equal.

Since 1903 Megger branded instruments have been setting the standard for insulation testing. This selection of testers represents our best yet. Offering the user IEC61010-1 Category IV 600 V safety, these testers are tough. So tough we have been able to rate them at IP65, meaning they are dust proof and immune to jets of water. Megger's unique dual case design means no compromises have to be made. They come in an easy to carry outer plastic case that they can take the bashing that you would expect when in use on site, while an inner case has all the fire retardant properties you require.

The whole range is simple to use. A quick-start guide is included in the lid of the tester, removing the need to carry bulky user manual, and explaining all the controls in detail. Adjustable timers and limit alarms are built in. There is large, clear, back-lit display. Information shown on the screen includes insulation resistance, the applied voltage, test current, capacitance, battery status and time constant. The elapsed time is also displayed through out the test, so you know where you are as the test proceeds. The display is back-lit to make it easy to read, whether you are working in bright sun light or a poorly lit area. The testers can be operated when plugged in to an a.c. supply or on the battery power, meaning that you are always in the position to get on with the job.

To ensure you are measuring what you think you are measuring and not surface leakage the Megger high voltage insulation testers, like many 5 kV and 10 kV insulation testers available, are fitted with a quard terminal.

However Megger actually specifies the performance of the guard terminal, so you know it really is doing its job correctly. Remember the guard terminal performance is an integral part of your measurement uncertainty.

- Insulation test voltages from 50 V to 15 kV for maximum flexibility
- Insulation resistance measurement up to 30 TΩ to help predict insulation problems early
- Guard terminal function available to eliminate surface current effect
- High charge current available for measurement of inductive loads
- High noise immunity for measurement in areas of high electrical noise
- **■** Tough construction
- Dual case design ensures optical isolation between the operator and the HV circuit
- Diagnostic functionality
- Rechargeable battery and a.c. mains operation
- On-board test result storage
- Meter operates from a.c. mains whilst charging

10 kV testers are capable of measuring insulation resistance up to 20 T Ω and 5 kV testers up to 10 T Ω . This means that you are able to spot deteriorating insulation early, trend its deterioration and predict when it will need replacement, making for a truly planned approach to maintenance.

MIT515

For customers who require a simple high voltage insulation tester the MIT515 is the perfect service and maintenance tool. Tough and testing to 5 kV, the MIT515 does not offer all the testing flexibility of other instruments in the range but does offer popular test modes, basic and timed insulation resistance, polarisation index and dielectric absorption ratio. With safety features such as locking test leads, a test button that can't initiate a test by simply being knocked accidentally and operation to 3000 m with CATIV 600 V protection a user's safety is ensured. Megger testers have the merits of a stable voltage supply and high specification guard terminal to ensure accurate results.

MIT525 and MIT1025

Electrical engineers requiring more diagnostic functions on their testers will find the additional sophistication of the MIT525 and MIT1025 meets their needs. Offering testing to 5 kV and 10 kV respectively, these testers feature automatic insulation resistance testing polarisation index (PI), dielectric absorption ratio (DAR), they



High voltage insulation testers

add step voltage (SV) dielectric discharge (DD) and a ramp test. The 10 kV isolated USB interface makes real time downloading of test data and stored information to asset management software quick, easy and intuitive.

MIT1525

The addition of the MIT1525 to the range means that electrical engineers do not have to limit their testing to 10 kV but can extend it to 15 kV, with a short circuit set up to 3 mA and a maximium measurement of up to 30 $T\Omega$

All the MIT series of testers include lithium ion battery technology reducing full recharge time to only 2.5 hours, while a 30 minute recharge will give you an hour's 5 kV testing in to a 100 M Ω load.



MIT515 can be used when plugged into the mains, on battery or while recharging

Accessories



1002-643 Medium clip test lead set available in 3, 10 and 15 m length



1002-647 Large clip test lead set available in 3, 10 and 15 m length



1005-259 15 kV large clip lead set available in 5, 10, 15 m length

		MIT515	MIT525	MIT1025	MIT1525
Test voltages	15 kV				
	10.0 kV				
	5.0 kV				
	2.5 kV	•			
	1.0 kV	•	•	•	
	500 V	•	•	•	
	250 V				
Variable test voltages	10 V steps from 100 V to 1 kV				
	25 V steps from 1 kV to max test voltage				
Measurement	Max reading	15 ΤΩ	15 ΤΩ	20 ΤΩ	30 TΩ
	Min reading	10 kΩ	10 kΩ	10 kΩ	10 kΩ
	Voltage				
	Capacitance	•			
	Leakage current				
Test types	Insulation resistance			•	•
	Timed insulation resistance				
	Polarisation index				
	Dielectric absorption ratio				
	Step voltage		•	•	
	Dielectric Discharge				
	Ramp test				
Other features	Analogue and digital display				
	Timer control and display				
	Short circuit current	3 mA	3 mA	3 mA	3 mA
	Max noise rejection	3 mA	3 mA	3 mA	6 mA
Interfaces	USB output				
Power supply	Mains				
,	Rapid rechargeable Li ion battery				
Weight	kg	4.5	4.5	4.5	4.5
Software supplied	PowerDB lite				
Safety		CAT IV 600 V	CAT IV 600 V	CAT IV 600 V	CAT IV 1000 V
Ingress protection		IP65	IP65	IP65	IP65
FREE calibration certifica	te supplied			•	
Warranty upgradeable to	• • • • • • • • • • • • • • • • • • • •				

DLRO10 series

Low resistance testing, some times know as Ducter testing, is a method of checking the continuity of a of a bond, cable joint or busbar and confirming that there is as little energy loss across the test piece due to resistance as possible. Applications are extensive, from power engineering through to aeroplane maintenance, and quality control to rail maintenance.

DLRO10 is an entry level, low weight low resistance tester. It is fully automatic selecting the most suitable test current up to 10 A DC to measure resistance from 0.1 $\mu\Omega$ to 2000 Ω . It makes measurements with forward and reverse currents to cancel the effects of any standing voltages across the test sample and displays the results on a large bright LED display. It is powered by a purpose built NiMH rechargeable battery pack which can be swapped out while it is being recharged. The pack contains its own battery state indicator. DLRO10 testers are used extensively by London Underground for checking earth bonds in the dirty, damp environment that the tunnels under the city offer.

DRLO10X must be the most sophisticated low resistance tester on the market. Offering the same low weight and detachable, rechargeable batteries as the DLRO10, the DLRO10X has sufficient on-board memory for 700 sets of results and notes. Notes are made using the alpha-numeric keypad and can be downloaded to a computer. DLRO10X displays the forward and reverse readings and the average of the two on its LED screen with in 3 seconds. Amazingly the basic accuracy of the instrument is 0.2%. Among other applications one customer uses the DLRO10X for production quality control, putting its facility for real-time data transfer to good use.

- Up to 10 A test currents
- Protection against accidental connection to a live circuit
- Automatic checks continuity of connections
- Multiple operating modes including fully automatic
- Option of high and low power testing
- Fast charge battery option
- Highly accurate continuity measurement
- Mains operation option available

DLRO10 even come complete with a car charger





DLRO10HD offers a different combination of features that may more closely meet your needs, housed in a tough poly propylene case, it is rated at IP54 when in use battery powered, and IP65 when the case is closed. It can be operated from both mains and battery and while re-charging.

Uniquely DLRO10HD also offers the ability to test at high or low power. This gives the potential of condition diagnosis and is particularly useful for measuring thick conductors, bonds and welding quality. DLRO10HD can output 10 A for 60 seconds in to 250 m Ω



The DLRO10HDX provides five test modes each of which is selected through a simple rotary control on the Mode selection rotary switch. All memory functions, delete, download to PowerDB and recalling test results are also accessible via the Range Selection rotary switch.

A simple control panel enables easy navigation for

- NEW Onboard memory storage for test results up to 200 records (HDX only)
- Download to PowerDB
- NEW interchangeable test lead terminations
- High or low output power selection for condition diagnosis
- Operates from battery or AC mains supply
- Protected to 600 V without blowing a fuse, test lead live voltage warning light
- Heavy duty case: IP 65 lid closed, IP54 operational
- Simple rotary switch selection of five test modes, including auto start on connection

DLRO10HDX

Augmenting Megger's DLRO10 and 10X range the DLRO10HDX combines ultimate simplicity of operation with a rugged IP65 case designed for stable ground and bench operation and provides memory storage.

These units are powered from either rechargeable battery or mains power making it suitable for continuous testing in production line/repetitive use environments.

Rotary switch controls are simple and easy to operate in all weather conditions and with gloved hands. A large, clear, backlit LCD display is easy to read from a distance. The DLRO10HDX provides significantly enhanced compliance and is capable of delivering 10 A into measurements up to 250 m Ω and 1 A into measurements up to 2.5 Ω . The duration of each test may be up to 60 seconds.

The DLRO10HDX is rated CAT III 300 V provided the optional terminal cover is fitted to the instrument. Details of which can be found in the ordering information panel of this data sheet.



DLRO test leads fitted with duplex Connectors

Duplex connect test lead system for use with any Megger 10 A DLRO and BT51 instruments The Megger DLRO duplex connect four terminal test lead system is designed to provide the most cost effective and convenient way to provide the user with all of the test lead terminations and lead lengths required for the many different applications encountered in low resistance testing.



At the centre of this unique test lead system is a bespoke connector allowing terminations such as kelvin clips or duplex test probes to be changed as required. There are two connector versions, one being fitted with indicator LEDs that operate with the DLRO10 range of instruments. The indicator LEDs provide enhanced safety and convenience with indications as follows:

DLRO10, DLRO10X, DLRO10HD AND DLRO10HDX

- Warning of connection to hazardous live voltage (Not DLRO10X, warning is given on the display)
- When continuity is made
- When a test complete and measurement is on instrument display

DLRO10X adds

■ Indication of pass / fail to user set test limits

All of these important indications are therefore seen near the point of connection without needing to view the instrument display. There is even a 6 m extension lead to provide the ultimate in flexibility.

Dupplex connect system Component parts

Connect Test Leads With / Without Light

Single test leads supplied without terminations. These duplex test leads are fitted with hook terminations for connecting to an instrument and a connector plug equipped with ultra-bright LED indicator lights viewable from any direction.



Connect test leads with indicator lights

1006-456 Duplex test lead 1.5 m 1006-458 Duplex test lead 3 m 1006-459 Duplex test lead 6 m



Connect test leads without indicator lights

1006-452 Duplex test lead 1.5 m 1006-454 Duplex test lead 3 m 1006-455 Duplex test lead 6 m

Connect extension lead

This 6 m long duplex connect extension lead is designed to extend the duplex connect test leads that are without indicator lights.



1006-460 EL6-C 6 m connect

Terminations

Duplex connect handspike with sprung loaded tips and twisting tips fitted with a connector socket for easy connection to any connector test lead.



Duplex Connect Probe



Duplex Connect Twist Probe



Concentric Probe 1 1006-448 CP1-C



Kelvin Clip 1 1006-447 KC1-C

Large Touch Proof Insulated Clip - Adjustable Jaw Openning

Duplex connect Kelvin Clip 2 is a fully insulated touch proof clip for applications where a high safety rating is required.



Kelvin Clip 2 1006-451 KC2-C

Other accessories



6380-138Carry case for DLRO10 and accessories not DLRO10HD



1000-809 Kelvin lead kit available in 30, 50 and 100 m length

Complete Duplex Connect Leads Sets



Probe Lead-Sets 1006-442 DH1-C Two wire, four terminal duplex twist probe lead set 3 m long.



Duplex Probe 1006-444 DH4-C Two wire, four terminal duplex probe lead set 1.5 m long. One lead fitted with indicator lights



Kelvin Clip 1006-462 KC1-TL3-C Two wire, four terminal kelvin clip lead set 3m long.



Insulated Kelvin Clip 1006-461 KC2-TL3-C Two wire, four terminal insulated kelvin clip lead set 3m long.

Optional terminal cover



The CAT III 300 V rating on the DLRO10HDX is only valid when the instrument is fitted with the optional terminal cover to provide the required creepage and clearances at the instrument terminals. Although the terminal cover may be used

with any test leads, only the Megger DH4,

DH5 and DP1-C duplex handspikes, and KC2-C insulated kelvin clips have suitable probe insulation to comply with the requirements of IEC61010-1 and the CATIII 300 V rating.



1006-463 As DH4-C but supplied with DLRO10HD terminal Cover for CATIII 300 V rating



1006-445 As DH4-C but 3 m long

		DLRO10	DLRO10X	DLRO10HD	DLRO10HDX
		1.9999 mΩ	1.9999 mΩ	2.5000 mΩ	2.5000 mΩ
		19.999 mΩ	19.999 mΩ	25.000 mΩ	25.000 mΩ
		199.99 mΩ	199.99 mΩ	250.00 mΩ	250.00 mΩ
Ranges		1.9999 Ω	1.9999 Ω	2.5000 Ω	2.5000 Ω
		19.999 Ω	19.999 Ω	25.000 Ω	25.000 Ω
		199.99 Ω	199.99 Ω	250.00 Ω	250.00 Ω
		1999.9 Ω	1999.9 Ω	2500.0 Ω	2500.0 Ω
Danner high never				250.00 mΩ	250.00 mΩ
Ranges, high power				2.5000 Ω	2.5000 Ω
	Manual	•			
	Automatic	•		•	
Measurement mode	Continuous	•		•	•
ivieasurement mode	Inductive mode 10A				
	Inductive mode 1A	•			
	Unidirectional			•	
Display		LED 4 1/2 digit	LCD backlit	LCD backlit	LCD backlit
Results and data stora	ige				
Weight		2.6 kg	2.6 kg	6.7 kg	6.7 kg
Power supply	Mains	DLRO10LPU	DLRO10LPU	•	
rower supply	Rechargeable battery	•		•	•
Battery charging time		4 hr	4 hr	8 hr	8 hr
Ingress protection rati	ing	IP54	IP54	up to IP65	up to IP65
Safety CATIII 300 V				•	
Safety CATIII 600 V		•			
Warranty upgradeable	e to 2 years FREE				

Multifunction installation testers

MFT1800 series

The MFT1800 series is tough



It won't go bang if it's connected across phases, when it's dropped, when it's used in the rain, when the wrong range is selected or when it's connected to live circuits - even with the test button locked on!

Dust and rain proof to IP54 the MFT1800 series offers CAT IV safety, meaning you can use it in any environment without a second thought. It can test to any IEC 60364 derived standard quickly, easily and safely. The tester is supplied in a tough carry case ready to work, complete with batteries, user guides and calibration certificate.

With a good selection of earth tests, 15 mA auto-reversing continuity testing, and Type B and 2 x I Δ N RCD testing, and automatic reverse polarity correction for live tests on-board the MFT1800 series is perfect for the testing you do.

MFT Series

- 2 and 3 wire non-trip loop impedance range
- 2 wire Hi current loop including phase to phase testing
- Prospective fault current measurement up to 20 kA
- Insulation test at 100 V, 250 V, 500 V and 1000 V (dependant on model)
- Auto reverse continuity measurement 0.01 Ω to 9.99 kΩ
- 10 mA to 1 A single and 3 phase RCD testing (no earth) (dependant on model)
- Type AC, A, S, B and programmable RCDs (dependant on model)
- ½ x IΔN, 1 x IΔN, 2 x IΔN and 5 x IΔN RCD tests (dependent on model)
- Auto RCD testing
- Phase rotation
- Earth electrode testing 2-pole/3-pole*, ART* and Stakeless techniques* (dependant on model)
- Internal memory and Bluetooth® communications (MFT1835-MFT1845)
- EN61010 CAT IV safety rating and tough IP54 case
- * Requires optional earth test kit, MCC1010 / MVC1010

MFT1845

The MFT1845 offers a wide range of test functions designed to make testing on low voltage electrical systems fast and easy. The MFT1845 is IEC 61010 CAT IV 300 V rated for safe connection anywhere within the LV network on single and 3 phase systems.

The unique modern styling allows it to be operated while stood on the floor, whilst up a ladder or platform, and optimised for hanging around the user's neck. Dual TEST and LOCK buttons - one pair at each end - makes the testers easy to operate left or right handed.

- Enhanced non-trip loop impedance measurement technology
- "TrueLoop" loop measurement analysis (patent pending)

New Loop Impedance testing technology:

The MFT1845 includes a new non-trip loop testing technology that:

- Prevents any influence the RCD may present to the total loop impedance value.
- Faster non-trip loop testing down to 8 seconds.

This technique also allows testing of loop impedance through 10 mA type AC and Type A RCDs.

New "TrueLoop" measurement analysis (Patent pending)

Overlaying the new non-trip loop impedance measurement is the new Megger "TrueLoop". As loop impedance values can be dramatically affected by circuit noise, the TrueLoop displays the degree of confidence in the accuracy of the measured loop impedance. Using the digital ARC to indicate the analytical process, the measurement is continually monitored and adjusted when circuit noise is present, resulting in a dramatically improved and repeatable test result.



Multifunction installation testers MFT1800 series

		MFT1815	MFT1825	MFT1835	MFT1845
Insulation test	1000 V				-
ranges	500 V				
	250 V				
	100 V				
	Test voltage display				
	Adjustable buzzer threshold				•
Continuity and	200 mA				
resistance range	15 mA				•
	Easy lead null				•
	Auto-reverse continuity test	•	•	•	•
	Adjustable buzzer threshold			•	•
Loop testing ranges	2 and 3-wire no-trip test L-PE				•
	PSCC and PFC (20 kA max)			•	•
	L-PE 48 V to 280 V, 45 Hz to 65 Hz				•
	2-wire high current testing L-L and L-N	•	•	•	•
	Phase to Phase tests (L-L) 48 V to 480 V				•
	L-N 48 V to 280 V, 45 Hz to 65 Hz	•	•	•	•
	Confidence meter on loop test range				•
	New loop impedence test method				•
	Touch voltage display 0 – 253 V				•
RCD testing range	½ x IΔN, 1 x IΔN, 5 x IΔN RCD test			•	•
	2 x IΔN				•
	0° + 180° phase angle	•	•	•	•
	10 mA, 30 mA, 100 mA, 300 mA, 500 mA RCD	•	•	•	•
	1000 mA RCD test		•	•	•
	Auto RCD testing				•
	Fast ramp test	•	•	•	•
	Type AC, A, S RCDs				
	Type B (pure DC) RCDs			•	•
	Programmable RCDs	•	•	•	•
	3 phase RCD (no earth)		-	-	•
Voltage frequency and phase rotation	10 V – 600 V AC and DC voltage / Frequency 15 Hz – 400 Hz	•	•	•	•
range	TRMS measurement			•	•
	Phase rotation				•
Earth electrode	2-pole (Testleads)		Optional	Optional	Optional
tests (optional	3-pole (Testleads)		Optional	Optional	Optional
accessories may be required)	3-pole ART technique (MCC1010 & testleads)		Optional	Optional	Optional
	Stakeless method (MCC1010 & MVC1010)			Optional	Optional
	Current measurement (MCC1010)			Optional	Optional
Intelligent safety	Test lockout	•			•
system	Safe contact detector		•	•	•
	Live circuit warning	•		•	•
	Auto discharge			•	•
	Analogue arc display				•
Additional benefits	Bright easy-to-read display	•	•	•	•
	Auto power-down Rechargeable batteries / charger	•	•	•	
	included				
	FREE calibration certificate	•	•	•	•
	SP5 Switched probe included	•	•	•	•
	Warranty upgradeable to 3 years FREE	•	•	•	•
	Dust and weatherproof to IP54	•	•	•	•
	On board memory with Bluetooth® download			•	•
	Safety rating	CAT IV 300 V	CAT IV 300 V	CAT IV 300 V	CAT IV 300 V CAT III 600 V

Accessories



1001-991 3-wire lead test set



1001-975 3-wire 10 A fused test lead set



3-wire earth electrode test set



RCD testers

RCDT300 series

The Megger RCDT testers provide the full solution to RCD testing

The RCDT tests not only Type A and Type AC RCDs, but also the selective (time-delayed) variants of both types, performing ½I, 1I and 5I tests on RCDs rated at 30 mA, 100 mA, 300 mA and 500 mA tested at 0° or 180°.

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.

Save your valuable time

RCDT320 offers additional time saving features.

Auto RCD testing – RCDT320 will automatically cycle through the ½I, 1I and 5I tests at 0° or 180° 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 $\frac{1}{1}$ to $\frac{11+10\%}{1}$. The trip current is held on the display, making it quicker and easier to diagnose nuisance tripping.

RCDs on 110 V (55 V - 0 - 55 V) centre tapped site supplies can be tested by the Megger RCDT320 due to its wide operating voltage range of 50 V to 280 V.



Your safety is Megger's number one concern

These RCD testers have built in safety features to look after you and the tester –

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

Megger RCD testers are so easy to use and quick to learn

- There are no buried functions, so they are easy to use
- The colour coding helps test selection, speeding up testing time and helping you identify faults fast
- The quick start guide in the lid keeps all the basic information at hand when you need it

Megger RCD testers will take the bashing that testers receive when they are on site

They are rubber armoured and have an integral solid lid to cover the display.

The lid has a heavy-duty hinge that locks away underneath when in use, making it easy to use and impossible to lose.

And you don't need to pull out the test leads to shut the lid.

Special features

- **■** Thick rubber armoured case
- Clear LED polarity indicator
- Large, easy to read display
- Super grip test-leads with lock on croc clips
- Tough
- Easy to use
- Safe
- Weatherproof to IP54
- Hands free auto-RCD testing
- USB downloading on RCDT330

Power Quality

MPQ2000

Portable Power Quality Analyzer

The Megger MPQ2000 Power Quality Analyser is a highly intuitive, advanced portable 3-phase analyser, delivering unmatched capability, in a rugged IP54 weatherproof enclosure. View RMS data, waveforms, demand data, phase angles, harmonics, unbalance, flicker and more in real time with the MPQ2000 scope mode and DVM mode. When data needs to be recorded, the MPQ2000 record verification automatically identifies the current clamps, recognises their range and verifies the unit is connected properly. Simply connect it and push the record button.

The MPQ2000 can record for extended periods of time because of its massive memory. It utilises an SD card which makes expanding the memory as easy as installing a new SD card. The recorded data can be viewed on the unit's color VGA display. The data can be transferred to the high-power Megger PQ Power Quality Analysis software via USB cable, USB stick, Ethernet, or directly from the SD card.

The free software, which requires no license, optimises the MPQ2000 to locate the power quality phenomenon such as lighting issues, computer problems, tripping breakers, and much more. It offers advanced charting, advanced waveform and advanced harmonic analysis.

Measured parameters

- RMS voltage / current
- DC voltage
- DC current (requires DC CT)
- Phase-to-phase voltage
- Power parameters (KW, KVAR, KVA, DPF, TPF)
- Voltage sag/dips and swells
- Phase angles
- Current sags/dips and
- Transient down to 1 msec

- Total harmonic distortion
- **Total demand** distortion
- Harmonics
- Inter-harmonics
- **Energy parameters** (KWH, KVARH, KVAH)
- **Power harmonics**
- Harmonic direction
- IEC flicker
- Rapid voltage change
- Phase angle deviation
- IEC unbalance and **ANSII** unbalance
- **Frequency**



Features

- Powering off phase A makes the unit versatile, allowing its use in any location.
- IP54 weatherproof enclosure is designed for outdoor operation. The unit is robust enough to remain recording outdoors.
- Automated configuration in the Megger PQ software for quick and easy setup.
- Easy intuitive menus allow for simple navigation and operation.
- Record verification ensures the unit is configured correctly and you get the data you need — no wasted recordings.
- Automatic CT recognition means never having the unit programmed for a wrong range.
- CTs are powered by the unit so there's no need for additional connections or batteries.
- Full-featured Class A compliant (all parameters).
- On-board data analysis saves time by allowing an immediate examination of the data while still in the
- The expanded 1000 Vac range allows for more applications; no need for a second unit.
- 1000 DC measurement allows testing and analysis of renewable applications dismissing the need for additional equipment.
- Phase angle stability measurement lets you easily find tricky phasing problems caused by multiple erratic sources.
- CAT IV at 600 V ensures a safe unit for all applications.
- Multiple communication methods (USB, Ethernet, USB stick or SD card) allow flexible and convenient operation
- Removable SD card allows for large recording capabilities and simple memory expansion.
- Included PC software: data analysis, configuration wizard, analyse waveforms through 128th order.

Accessories



Split Code 1000 A (CP-1000WCF)



Current Clamp Available options: 100 A (CP-100CE-ID) 20 A (CP-20CE-ID) 5 A (CP-5CE-ID)



MCCV Rain Tight Flexible Current Clamps Available diameters: 18 cm (MCCV6000-18) 27 cm (MCCV6000-27) 37 cm (MCCV6000-37)



Hall Effect Current Clamp 600 A DC and 400 A AC (CP-600DC-ID)

Multimeters for electricians

AVO800 series

- Voltage and current, with TRMS, resistance, conductance, capacitance, frequency and temperature measurement
- Choice of input impedance without changing test ranges for fast and safe detection of unintentionally coupled voltages
- Integrated non-contact live circuit detection with high and low sensitivity settings
- Reading capture tools including minimum, maximum, average, manual and auto hold, smoothing and low pass filtering to ensure you get the measurement you need.
- Phase sequence detection
- CAT IV 600 V and CATII 1000 V
- Dust and weather proof to IP64

Specifically designed for the electrical engineer and profession electrician, this range of tough, high quality multimeters offers the perfects election of functions required. Useful innovations such as the high and low impedance switching allow a quick and safe method to identify capacitive coupled, ghost, voltage. The introduction of the dual sensitivity non-contact voltage detector helps you identify a live circuit at a distance and then to pinpoint the exact conductor or circuit.

Exceptionally the AVO830 series multimeters offer phase sequence detection to prevent miss connection and the consequent damage to motors and generators.

These functions are in addition to the fact that this range offers a 10,000 count display with a basic accuracy of 0.01% accuracy, and shuttered 4mm inputs to ensure that the right connections are made every time.





Accessories



1002-001 2 wire test lead set



1002-015 2-wire 500 mA fused test lead set

Multimeters for electricians

True RMS multimeter

AVO410



- Voltage and current, with TRMS, resistance capacitance and frequency
- Auto ranging with the option for manual range selection
- Max and min measurement with data hold
- Tough rubber holster
- CAT IV 600 V safety rating

Basic multimeter

AVO210

AVOATO

MAN NAX REEZE

- Small light and easyto-use
- Auto ranging with manual over-ride
- Non-contact voltage sensor
- Max and min measurement and data hold function

		AV0835	AVO830	AVO410	AVO210
Current measurement	A AC (Overrange 20s)	10 A (15 A)	10 A (15 A)	10 A	10 A
	TRMS	•	•	•	
	A DC (Overrange 20s)	10 A (15 A)	10 A (15 A)	10 A	10 A
Voltage measurement	V AC	1000 V	600 V	750 V	750 V
	TRMS	-		•	
	V DC	1000 V	600 V	1000 V	1000 V
Basic accuracy		0.10%	0.10%	0.50%	1.00%
Resistance measurement		50 MΩ	50 M Ω	0 to 60 MΩ	0 to 20 MΩ
Continuity	Buzzer			•	•
Conductance measurement		60 nS	60 nS		
Diode measurement		2.8 V	2.8 V	10 mV to 3 V	10 mV to 2 V
Capacitance measurement		20 mF	20 mF	0 to 6.00 mF	0 to 2.00 mF
Frequency measurement		100 kHz	100 kHz	0 to 60 MHz	0 to 20 MHz
Phase rotation					
Temperature					
Non contact live circuit detection		hi/lo sensitivity	hi/lo sensitivity		•
Input impedance		10 M Ω or 10 k Ω	10 M Ω or 10 k Ω	10 ΜΩ	10 ΜΩ
Display		10,000 count	10,000 count	6,000 count	2,000 count
	Analogue arc				
	Backlight				
Ranging	Auto			-	-
	Manual				-
Data capture	Max min hold			-	
	Average				
	Manual and auto hold				-
	Noise suppression				
	Smoothing				
	Low pass filter				
	Relative				
	Relative (%)				
	Low Z capacitance				
Terminals	Shuttered				
Weight	g	442	442	522	320
Warranty upgradeable to 3 years FREE		•	•	•	•
Ingress protection		IP54	IP54		
Safety rating		CAT IV 600 V & CAT III 1000 V	CAT IV 600 V	CAT IV 600 V	CAT III 600 V
www.megger.com				19	

Clamp meters

1500 A trms clamp multimeter

DCM1500

- DC and AC current measurement up to 1500 A
- True RMS measurement for greater accuracy
- Large jaw size improves safety when working with uninsulated conductors
- 750 V AC and 1000V DC
- Resistance, continuity and frequency measurement
- Peak, minimum, maximum and data-hold functions

The DCM1500 is the perfect clamp multimeter for electrical engineers working in the industrial and power sectors. It is supplied ready for use with a pouch and test leads.

400 A AC clamp multimeter

DCM320

- 20 MΩ resistance range
- Continuity buzzer
- Auto-ranging
- Auto off to conserve batteries

The DCM320 is a low cost data hold current clamp and multimeter. It is supplied complete with test leads, batteries and carry case.



200 A AC open jaw clamp multimeter

DCM330

- 200 A AC open-jaw current measurement
- 0.1 V to 1000 V auto-ranging AC and DC voltage measurement
- 0.1 Ω to 20.00 M Ω Resistance range
- Continuity buzzer and diode check
- Non-contact detection of AC voltage
- CATIV 600 V

The Megger DCM330 is suitable for use anywhere where there is a requirement to measure AC current in single unshielded conductors less than 16mm diameter, AC / DC voltages up to 1000 V, or resistances up to 20 $M\Omega.$



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

DCM340

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

The DCM340 is an AC and DC current clamp and multimeter that offers exceptional value and is particularly suited to solar PV commissioning. It is supplied complete with test leads, batteries, user guide and carry case.



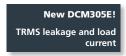
Clamp meters

Earth leakage and diagnostic clamp

This eliminates the influence of parallel paths and

permits the problem circuit to be identified for

DCM305E



- Versatile, very high resolution AC current clamp for identifying the cause of nuisance tripping and locating problem circuits
- 6 auto or manual ranges: 6mA (1 μA resolution), 60 mA 600 mA, 6 A, 60 A and 100 A
- Low pass filter to aid stability of readings.
- Auto, peak and data hold features for working in those difficult to access areas

The DCM305E is designed for the fault finding electrician. With the ability to measure earth leakage values as low as 0.001 mA, identifying problems that cause the nuisance tripping of RCDs or RCBOs is simple and straightforward.

With its high resolution and low pass filtering system the differential earth leakage is measure by placing the clamp around the live and neutral of the meter tails or each circuit in a distribution board.

400 A AC clampmeter

DCM310

- Easy to read
- Manual operation
- Low cost
- Tough

This easy to use clampmeter is ideal to rapidly check the current flowing with the minimum of fuss.



Furthermore the DCM305E can help discriminate between the sources of high leakage current, whether it is intentional, requiring some form of load spreading, or unintentional either due to a faulty installation or a faulty appliance. With a peak hold capability, leakage spikes caused by appliance switching can also be easily identified.

remedial action.

	DCM305E
Measurement function	TRMS leakage and load current
Ranges	6 mA, 60 mA, 600 mA, 6 A, 60 A, 100 A
Maximum resolution	0.001 mA
Ranging	auto or manual
Low pass filter	50 to 60 Hz
Maximum Jaw diameter	40 mm
Hold features	peak, auto and data
Safety rating	CAT III 300 V



1002-001 2 wire test lead set

Accessories



1002-015 2-wire 500 mA fused test lead set

		DCM305E	DCM310	DCM320	DCM330	DCM340	DCM1500
Current ranges	A AC	6 mA, 60 mA, 600 mA, 6 A, 60 A, 100 A	20 A, 200 A, 400 A	40 A, 200 A, 400 A	200 A	60 A, 400 A, 600 A	400 A, 1000 A, 1500 A
	True rms						
	A DC					60 A, 400 A, 600 A	400 A, 1000 A, 1500 A
Voltage ranges	V AC			200 V, 600 V	200 V, 1000 V	400 V, 600 V	400 V, 750 V
	True rms						
	V DC			200 V, 600 V	200 V, 1000 V	400 V, 600 V	400 V, 1000 V
Resistance ranges	Ω			200, 2 k, 200 k, 2 M, 20 M	200, 2 k, 200 k, 2 M, 20 M	400	400
Continuity buzzer				•	•	•	
Frequency measure	ement						
Diode check					•		
Other features							
	Auto-ranging			•			•
	Backlight	•					•
	Data hold	•	•	•	•	•	•
	Max / min hold		Max hold only				•
	Conductor size	40 mm	27 mm	27 mm	16 mm	35 mm	51 mm
	Safety rating	CAT III 300 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V	CAT III 600 V	CAT IV 600 V

Loop impedance tester

2 wire non-tripping earth loop impedance testers

LTW series

The loop test is performed with only 2 test leads. This can be either:

- Phase to Earth
- Phase to Neutral
- Phase to Phase

Testing is simple. There is no need for a third wire which could cause confusion in identifying the part of the circuit under test.

Non-trip loop testing

LTW series testers will not trip working RCDs of 30 mA, using the Non-trip loop test setting.

Noise detection on non-trip tests

LTW uses sophisticated noise detection circuitry which continually monitors the supply during a loop test to ensure the accuracy of the result has not been affected by electrical noise from plant and services.

Two operational modes are available:

- a) Performs a 10 second test and if noise is detected a warning is displayed.
- b) Automatically extends a test to improve the accuracy.

High current loop testing

For supplies that are not RCD protected the high current test is recomended, as there is no risk of tripping the RCD.

Auto start

An auto-start function will start the loop test running as soon as the test leads are connected, means much faster testing.

Three-phase safe

The instruments will operate on a wide range of electrical voltages.

High resolution test

LTW425 offers a high current, high resolution loop test to three decimal places (0.001 Ω).

PFC Display

All instruments can calculate up to 20 kA and the LTW425 can calculate up to 40 kA using the 0.001 high current, resolution test range.



The popular LTW325 comes complete, ready for work

High current earth loop impedance tester

LT300

Measure a wide range of frequencies with the LT300



The LT300 offers high current loop testing over a wide range of frequencies and supply voltages with simple, fast, two wire operation.

Frequency range

Supply frequency is indicated upon connection and the LT300 will automatically set to the supply frequency either 16 Hz,

33 Hz, 50/60 Hz, 125 Hz or 400 Hz. Testing will commence automatically.

Loop measurement

Two loop impedance ranges are provided.

20 Ω - Resolution to 0.01 Ω

200 Ω - Resolution to 0.1 Ω

Supply voltage

Operational supply range extends from 50 V to 550 V

(400 V @ 16 Hz), with a warning for voltages over 330 V highlighting accidental phase to phase connections on a nominal 230 V system.

Accessories



1001-976 2 wire test lead set



1001-977 2-wire 10 A fused test lead set



Earth resistance testers

Four pole earth electrode and soil resistivity tester

DET series

DET4T

- 2, 3 and 4 pole testing selected by turning a switch
- Extended test range to 200 kΩ option
- Dry cell or rechargeable versions
- User selectable test frequency and voltage option
- Attached Rod Technique (ART) option Stakeless measurements option
- Automatic circuit checking
- Comes with Power DB Lite earth testing forms that do the calculations for you
- Backlit display
- Weather and dust proof to IP54
- Safety rated CAT IV 100V
- Complete with lead and stakes packed in a hard wearing carry case
- Delivered with a FREE calibration certificate

The tough and easy-to-use DET4TD2 and its rechargeable counterpart the DET4TR2 are a popular choice with contractors. Capable of performing 2, 3, and 4 pole measurements these instruments are ideal for testing both ground electrode systems, and soil resistivity.

DET4TC2 and DET4TCR2

The DET4TC2 and its rechargeable counterpart the DET4TCR2 are advanced ground testers capable of performing 2, 3, and 4 pole measurements. these instruments may be further enhanced with the addition of an MCC1010 and MVC1010. The MCC1010 will allow the user to perform A.R.T. (Attached Rod Technique) measurements, removing the need to disconnect an electrode from a system to test it. Using both an MCC1010 and a MVC1010 will allow stake-less measurements, perfect for locations where driving auxiliary stakes is not practical.

The addition of variable test frequency allows the user to move away from problem noise frequencies, and extended resistance ranges extending soil resistivity capabilities.



Three pole earth electrode tester

DET3T

- 3-pole earth electrode testing and bond testing
- Attached Rod Technique (ART) option
- Selectable 25 V or 50 V output
- Complete with lead and stake kit
- Simple one button operation
- Hardwearing carry case
- Delivered with calibration certificate
- IP54 rated

DET3TD

The DET3TD is a popular choice with contractors due to their toughness. Capable of performing 2 and 3 pole measurements these instruments are great for testing both installation and lightning protection ground electrode systems. The instrument is tough in every way, built to work in the roughest of outside conditions, and built to give the user a high level of electrical safety. This is demonstrated by specifications such as IP54 ingress protection, high noise immunity, and CAT IV safety.

DET3TC

The DET3TC, is like the DET3TD however, with the addition of an MCC1010 adds the capability of performing A.R.T. (Attached Rod Technique) measurements, removing the need to disconnect a single electrode from a system to be able to measure it.



Earth resistance testers

DET14C and DET24C

Clamp-on earth electrode tester

DET14C and DET24C induce a test current into earth systems and measure earth resistance in multi earth installations without the need to disconnect the earth connection.

These earth clamps offer major advances in safety and access. A CAT IV 600 V rating combined with an automatic current warning to reduce risk of user disconnecting electrode with a hazardous current flowing. The unique elliptical head shape and short body length give unrivalled access to awkwardly sited electrodes.

- Elliptical clamp shape with 39 mm x 55 mm inner jaw dimensions
- Low maintenance flat jaw interface
- CAT IV 600 V safety
- Automatic noise current warning safety feature
- Resistance and current ranges auto ranging
- Automatic noise filter function



DET14C/24C flat jaw interface makes for long service life

Features



Eliptical jaw improves access

		DET4TCR2	DET4TC2	DET4TR2	DET4TD2	DET3TC	DET3TD	DET14C	DET24C	DET2/3
Test	4 pole resisivity test	-	•							Calculated
techniques available	3 pole electrode	•	•		•					•
	4 pole electrode test with ART	•	•							•
	2 pole bond test	•	•	•	•	•	•			•
	Stakeless test	•	-						•	•
Power	Rechargeable	•		•						•
	Dry cells		•		•	•	•	•		
Warnings	Excessive noise	•	•	•	•	•	•			-
	Potential spike resistance high	•	•	•	•	•	•			•
	Current spike resistance high	•	•	•	•	•	•			•
Resistance range	Resolution	0.01 Ω - 200 kΩ	0.01 Ω - 200 kΩ	0.01 Ω - 20 kΩ	0.01 Ω - 20 kΩ	0.01 Ω - 2.0 kΩ	0.01 Ω - 2.0 kΩ	0.05 Ω - 1.5 kΩ	0.05 Ω - 1.5 kΩ	0.001 Ω - to 20.00 $k\Omega$
Earth	0.5 mA to 35 A							•	•	0.00 to 2.00 A
current range	0.5 mA to 19.9 A	•	•			•				
Test frequer	ncy	94, 105, 111 and 128 Hz	128 Hz	128 Hz	1390 Hz	1390 Hz	10 to 200 Hz 0.5 steps			
Noise reject peak	ion 40 V peak to	•	•	•	•	•	•			50 V p to p
Test results	storage							•	•	•
Downloada	ble test results								•	•
IEC61010-1	safety rating	CAT IV 100 V	CAT IV 100 V	CAT IV 100 V	CAT IV 100 V	CAT IV 100 V	CAT IV 100 V	CAT IV 600 V	CAT IV 600 V	CAT IV 300 V
Weather- ar	nd dust-proof to IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP30	IP30	IP54
Warranty up years FREE	ogradeable to 3	•	•	•	•	•	•	12 months	12 months	•
Power DB e	arth testing forms	•	•		•					•

Earth resistance testers

DET2/3

Advanced Earth (Ground) Tester

The Megger® DET2/3 automatic earth (ground) test instrument is robust, compact and designed to measure earth 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 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), 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.

Features

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



Earth Testing Kits (ETK)

This is the professional Cable kit to complete earth electrode testing and soil resistivity surveys. This all new design is housed in a holdall for easy/ neat storage and is well protected and is easily transportable. Much care has been taken to produce a family of kits to meet a variety of needs.

The new design is tougher, lighter, and better than previous products. In use the reels have a smoother action and are far more manageable with less chance of snagging, saving time and improving the user experience. The test leads in the reels can be linked in a daisy chain together offering the user the opportunity of longer distances but in easily manageable sections.





- Can be used with any of the DET2/3, DET3, DET4 Megger earth testers.
- An assortment of lengths are available 30, 50 & 100 metres
- Lightweight
- Large comfortable handles for easy wind and unwind
- Clips on reels to retain earth spikes/ pins
- Ability to daisy chain, offering longer lengths

Two channel cable fault locators

TDR2000/3 and TDR2010

Two channel cable fault locators

When chasing faults on paired metallic cables in applications such as telephony and CATV you can't do better than the TDR2000 series. It is a highly portable, high resolution, compact, dual channel TDR with a large colour screen making fault location easier by allowing trace comparison.

With a best resolution of 0.1m the TDR2000 series has a 20 km maximum range, depending on the velocity factor selected and the cable type. Five output impedances are available (25, 50, 75, 100 and 125 Ω). There is an Auto Impedance matching feature and velocity factor can be adjusted from 0.2 to 0.99. TDR2000 series maximises the use of its large colour display, 800 px x 480 px, to help you locate your fault faster and identify it more accurately.

- Comprehensive dual channel capability with dual aspect display.
- Ultra-fast pulse for near end fault identification
- Guidance to potential fault.
- IP54 rating offers real life working.
- Designed for use on all metallic paired cables.
- Trace tagging a label or description to be added to saved traces (TDR2010 and TDR2050)



TDR2050

Offering a CATIV 600 V safety rating, the TDR2050 is perfect for chasing down fault on power circuits such as street lighting. Its IP54 rating means that it is perfectly at home working in the wind and rain of the real world. The step function trace improves the near-end performance of the TDR2050 as it prevents the trailing edge of the pulse masking faults.

	TDR500/3	TDR1000/3	TDR1000/3P	TDR2000/3	
Range Capability	10 m to 5 km	10 m to 5 km	10 m to 5 km	10 m to 20 km	
Shortest pulse width	2 ns	2 ns	2 ns	2 ns	
Number of channels	1	1	1	2	
Blocking filter	Built in	Built in	Built in	Built in	
Memory function	Trace Hold	Trace hold with live trace overlay	Trace hold with live trace overlay	100 trace memory with downloading	10
Auto power off	User set	User set	User set	User set	
Auto fault find				•	
Trace tagging					
Step function					
Distant dependant gain					
Auto end find					
Rechargeable				•	
Test leads	Miniature clip	Miniature clip	Miniature clip	Miniature clip	10
Safety rating	CAT III 300 V	CAT III 300 V	CAT III 300 V	CAT III 300 V	
IP rating	IP54	IP54	IP54	IP54	

Single channel cable fault locators



TDR1000/3 series

Auto find takes you to the first major event on the cable, press the button again and you are taken to the next disturbance. The find end function identifies the end of the cable and measures its length.

Distance dependant gain is useful if you are working with longer cables as the gain is increased along the returning signal to compensate for the attenuation due to distance. This means that far-end fault has a similar amplitude as if it were a near-end fault.

TDR2000/3P	TDR2010	TDR2050
10 m to 20 km	10 m to 20 km	10 m to 20 km
2 ns	2 ns	2 ns
2	2	2
Built in	Built in	Built in
0 trace memory with downloading	100 trace memory with downloading	100 trace memory with downloading
User set	User set	User set
•	•	•
	•	•
		•
		•
		•
•	•	•
A fused standard clip	Miniature clip	10 A fused standard clip
CAT III 300 V	CAT III 300 V	CAT IV 600 V
IP54	IP54	IP54

www.meager.com

Single channel cable fault locators

Using a Time Domain Reflectometer (TDR) is a well established method for finding the location of faults in metallic power or data cables. In the past TDRs have had a reputation of being expensive and difficult to use but now, the Megger TDR1000/3 series has put paid to that.

An AUTO selection option, fast pulse and built in blocking filter ensures that the most effective selection depending on the range required, helping rapid diagnosis of the TDR trace. In addition on the TDR1000/3 and TDR1000/3P, dual cursors allow complete flexibility, giving the operator full control and instant indication of distance between two points.

- Accurate and easy fault finding because of resolution as low as 0.1 m

- required

Ultra fast 2 ns pulse for near end fault identification ■ Trace hold and comparison not TDR500/3 Auto selected output impedance (between 25, 50, 75 and 100 Ω) Power blocking filter not

Insulation and continuity testers for communications engineers

MIT480/2 Series

A range of insulation and continuity testers designed for the communications markets and electrical installations. Developed to an ergonomic design with the latest measurement techniques and live circuit protection; the MIT480/2 has faster continuity testing and stabilised insulation test voltages for more accurate and productive installation

Insulation testing has the addition of feedback control to stabilise the test voltage to less than +2% (+2V) over-voltage, for safer and more accurate measurement.

As well as offering all the functionality of the standard MIT400/2 models, the MIT480/2 series is now fitted with three terminal connection to allow the connections to be made simultaneously and tests switched between the 3 pairs A-B, A-E or B-E. All measurements, except mA, are possible across all three pairs.

Variable test voltage is also available from 10 V to 500 V in 1 V steps.

Continuity testing is now fully automatic from 0.01 Ω to 1 $\text{M}\Omega$ with fast contact detection whilst continuously protecting against accidental contact with live circuits.

- Designed for the Telecommunications, Cable TV and electrical markets
- Three terminal testing for Telecommunications (A-B-E or T-R-G) and 3 phase electrical measurement, 3 terminal switching - no need to disconnect test leads
- Stabilise insulation test to -0% +2% of selected test
- Variable insulation test voltage from 10 V to 500 V in 1 V steps
- mA measurement for low current measurement applications
- Single range, faster continuity testing from 0.01 Ω to 1 M Ω



- Insulation testing up to 500 V and 100 GΩ in a hand held instrument
- 500 V gated test to prevent accidental testing of lower voltage networks at high
- 600 V Trms AC and DC voltage measurement
- Test result storage and Bluetooth® downloading
- Live circuit detection and protection

	MIT481/2	MIT485/2
Insulation ranges	1111401/2	1111403/2
50 V / 100 V / 250 V / 500 V		
Variable 10 V to 500 V		
μA button (Leakage)		
Lock button on $M\Omega$	-	
REN Telephone count (discharge)		
> 500 V Gated Operation		
OHMS Ranges		
Continuity 0.01 Ω - 1.0 MΩ	-	
Isc: 200 mA R \leq 4 Ω	•	
Isc 20 mA	-	
Difference measurement [REL]	•	
Lead null (<10 Ω)	•	
Voltage function		
AC / DC Volts 600 V	-	•
mV AC / DC range		
TRMS	•	•
Frequency measurement 15 - 400 Hz	•	•
Input impedance	10 ΜΩ	10 ΜΩ
Capacitance		
Capacitance 0.1 nF - 10 µF n	•	
Distance by µF (Open loop) n	•	•
REN calculation	•	•
Other features		
Current measurement mA AC / DC	•	•
PASS/FAIL on limit alarms		
A/B/E or T/R/G switching	•	•
Number of terminals	3	3
On board memory	•	

28 Electrical test instruments www.megger.com

Bluetooth® and software Recharger ready AA Alkaline or NiMH CAT IV / 600 V Accessories

Silicone leads (R,B,G) Switched probe supplied



- Simple tick or cross, pass or fail indication with measurement display
- Safe testing of IT and surge protected devices
- Battery powered with rechargeable option
- Plus many additional features on PAT150

PAT120 is the toughest, simplest and most economical electrical safety tester available that gives results that conform to the local regulations description.

Organising tests in to three test groups, Earthed, Double Insulated and Power and Extension leads, enables the correct sequence of tests to be performed automatically without the user's intervention, keeping testing simple and reducing test times. Pass limits are fixed. The default insulation test is 500 V DC but when testing IT or surge protected equipment 250 V DC. can be selected at the start of the test.

To make testing easier, the connections required for each test are shown in the lid of the PAT120. Another key difference from ordinary testers is the detachable neck strap that makes testing simpler when there is no convenient surface on which to work and makes the tester easier to carry with the test leads, report books etc.

Electrical safety testers

PAT100 series

Battery powered electrical safety tester

PAT150: On the other hand, as a stand-by tester for when you are asked if you "can just test" by a client PAT150 and PAT150R can't be bettered. Like all Megger products they are built to be really tough and the complete kit is supplied in a hard protective case which will occupy minimal space.

The PAT150s offer the functionality of testers that are almost twice the price. They will test both 10 mA and 30 mA portable RCDs as well as Class I, Class II and extension leads and power cords. Surge protected devices and IT equipment are safe-guarded by insulation testing at 250 V and leakage testing at 40 V. The quick test function allows individual testing of continuity; insulation and mains powered leakage testing as well as checking the output of SELV circuits. Preforming a mains powered differential leakage test has the benefit that the equipment will function during the test sequence.

The mains supply can be checked for voltage and for socket polarity by the PAT150s. You can configure the test durations and pass limits to suit your applications, and the bond lead resistance can nulled out to reduce measurement errors. The PAT150 is powered by standard 1.5 V AA cells while the PAT150R incorporates internal charging NiMH cells.

		PAT120	PAT150	PAT150R
Insulation test	500 V	•	•	•
	250 V	•	•	•
Earth bond test	200 mA	•	•	•
Earth leakage options	250 V	•		
	500 V	•		•
Alternative leakage	Substitute	•		
	Differential		•	•
	Touch current			
Functional test	240 V			•
Test lead null				•
Automatic test sequence	Class I (earthed)	•		•
	Class II (double insulated)	•		•
	Extension lead and power cords			
	Portable RCD			•
Manual tests	Continuity			
	Insulation			
	Main powered leakage			•
	SELV measurements			•
Combined continuity, earth bond and insulation test lead				
On-board battery re-charging				•
FREE calibration certificate		•		•



Electrical safety testers

PAT400 series

Two new electrical safety testers with full database functionality based on the well received PAT300 series. The PAT 400 series introduces a new level of convenience and speed to PAT testing using on-board test results storage.

Both meters include a differential, touch and alternative or substitute earth leakage tests. The PAT400 series offers sufficient memory for the test results of 10,000 assets with the proven long duty cycle, testing simplicity and speed of the PAT300 series. In use the PAT400 series has a large bright colour screen for clear test results and simple navigation through the menus.

The menus have been simplified to make operation faster and more intuitive. Five soft-keys give direct access to frequently used functions making navigation through the menus even faster and the tester even more productive, offering a greater return on investment.

The PAT400 series provides quick and easy access to records in the database and the data can be downloaded using a standard USB memory stick. For rapid data entry the PAT400 series has a choice a large QWERTY or QWERTZ keyboard, this helps to reduce typing errors. To speed up testing still further there is the option of a low cost barcode scanner and barcode label printer.



PAT410 perfect for those happy to bond test solely at 200 mA. The smallest, lightest of the PAT400 series weighs only 2.7 kg.

PAT450 in addition to the three bond tests and 230 V operation this tester offers 1.5 kV and 3.0 kV flash testing and a quick test facility which allows repeated use of a single test, making the perfect tool for hire and repair workshops



Special features

- Vast on-board memory to keep you on the job longer
- Continuous operation, no need to stop and wait for the tester to cool down
- Instant re-start as you move from room to room testing
- Soft keys to speed you through the testing process
- Full PAT testing including RCD testing
- Quick test access to single test functions
- Most productive tester in its class

Electrical safety testers

Accessories



1000-768 415 V adaptor lead (4-pin) to SC (CEE7/7) (16 A)





6220-639 110 V Extension lead adaptor





1005-423 Pass/fail barcode label printer (USB)

		PAT410	PAT450
Supply	230 V with supply measurement		
Earth bond/continuity	200 mA	•	•
	10 A		
	25 A		
	Bond lead null	•	
Insulation test	250 V		
	500 V		
Alternative leakage tests	Substitute		
	Differential		
	Touch current		
Functional test	VA measurement	•	
Extension lead tests	Earth bond	•	•
	Insulation		
	Polarity	•	
Portable RCD tests	$\ensuremath{\mathcal{V}}_2$ x IDN, 1 x IDN, 5 DN at 0° and 180°		
Flash test	1.5 kV and 3.0 kV		•
Other features	Low-profile light weight		
	Auto test routine	•	
	Manual testing		
	Configurable tests times	•	
	Selectable pass limits	•	
	Fuse check	•	
	Large colour display	•	
Data handling	10.000 record on-board storage	•	
	Download to USB memory stick	•	
	USB barcode scanner and printer option	•	
Supplied accessories	Carry case with lead storage pouch	•	
	Combined continuity, earth bond and insulation test lead		
	Red extension lead adaptor	•	•
	Flash test lead		
	Calibration certificate		•

Solar PV and earth leakage testing

PVK300 series

Photovoltaic kits



PVK300 kits supply all the instrumentation you require in addition to your multifunction tester to site, commission and test a solar PV installation to IEC62446, packed in a single pouch.

PVK320 includes an auto-ranging, CAT IV, 10 A DC, AVO410 multimeter that allows the short circuit current of a panel to be read directly, as well as the PVM210 $\,$

PVK330 includes the DCM340 a 600 A AC / DC clamp multimeter which speeds the measurement of array stings with out the need for disconnection. It can also measure DC voltages to 600 V.

	PVK320	PVK330
AVO410 CAT IV multimeter		
DCM340 Clamp multimeter		
PVM210 Irradiance meter	•	
MC3 to MC4 adaptor testleads	•	
MC4 to 4 mm plug testleads	•	•

PVM210

Solar PV testing Irradiance meter

- Single unit for one handed use increasing safety on ladders and roofs
- Perfect for measurement of incident light for PV panel short circuit current calculation
- 1999 W/m2 range on 3 ³/₄ digit LCD display
- Camera mount fixing for accurate placement

The pocket-size PVM210 is perfect for use on sloping roofs or at the top of ladders because it has the solar detector built in to the top. This is enhanced by its large clear display and hold function.

It is used for initially choosing optimum position for a PV installation and for measuring the solar power for the calculation of short circuit current to confirm the performance of the PV panel for certification.

On the rear of the meter is a universal camera thread that allows mounting for precise readings if required, also a protective pouch is included with each instrument.





a warbling tone.

Accessories

PSI410

Phase sequence indicator

The Megger phase PSI410 rotation indicator provides rapid indication of correct phase sequence utilising a three bicoloured LED display and a specific audible tone. Clockwise rotation is indicated by clockwise rotating green LEDs

The unit has been designed to provide a slow rotational speed of the display to allow easy recognition of the direction of rotation.

Dual phase colour coding has been adopted for the PSI410 to allow ease of use on both Brown / Black / Grey and Red / Yellow / Blue colour coded supplies.

The PSI410 also features a triple bi-coloured LED display that indicates that all three phases are present. A green LED indicates the phase is present while a red LED shows a missing phase connection. The unit has a tough case designed for an industrial environment and is supplied with long fused test leads with croc-clips and prods.

The PSI410 is self powered from the supply and requires no batteries.

- LED clockwise and counter clockwise phase rotation indication
- Audible indication of direction
- **Phase condition LEDs**
- **Fused test leads**
- **Dual phase colour identification**
- **CAT IV 600 V**
- Warranty upgradeable to 3 years FREE

VF2 and VF3

Volt finder with torch

VF2 offers a simple means of identifying live conductors, and blown fuses, combined with a bright torch.

VF3 offers a more accurate sensor and an even brighter torch.

XTL

Extension test lead and coil

- 30 metre and 50 metre versions
- Suitable for direct R2 measurements
- Easy to re-wind cable with tangle-free cable guide
- Compact and light design
- Compact extension test lead for direct R2 measurements so eliminating the need for crossover connections.
- The furthest point in the circuit can be easily verified, and every earth point on the circuit checked for integrity prior to energising.

	CODE
50 m extension lead, green, with connection with croc clip	XTL50
30 m extension lead, green, with connection with croc clip	XTL30



Voltage detector, socket tester

MPU690

TPT320

Unit

Voltage testers

Good practice demands that a two-pole tester is proved on a known live source or proving unit both before and after use.

The Megger MPU690 is a convenient method to prove the safe operation of all two-pole testers and Drummond test lamps.

- Capable of testing two-pole voltage detectors and test lamps due to 10 W output
- Step voltage LEDs indicate voltage being generated. 50 V, 100 V, 230 V, 400 V and 690 V
- Generates a.c. waveform for a true test
- Compact design that has an integral magnet for attaching to the cabinet encourages routine safety checks
- Automatic on and off conserves batteries
- Low battery indication gives ample warning to replace batteries
- Also proves operation of the VF2 and VF3

- AC / DC voltage from 12 to 690 V
- Continuity
- Phase rotation
- LCD / LED display
- CAT IV 600 V rating

The new TPT320 features LED and LCD displays that provide both AC and DC voltage measurement from 12 to 690 volts. In addition, a continuity range of 0 to 500 k Ω is included.

Designed to be used on RCD and RCBO protected circuits without causing tripping, the unit also has the ability to indicate phase rotation, has an audible sounder to confirm continuity as well as the presence of voltage. With a built in high power LED torch, IP64 case and CAT IV 600 V safety rating, the TPT320 is the ideal site tool to conform with current safe isolation procedures. An additional safety feature is the ability to indicate the presence of voltage even in the event of the internal battery being exhausted.



Don't miss out!

The warranty of many Megger products can be upgraded to three full years free of charge, simply by registering the purchase of the product. So you can register your product cost FREE allowing us to give you full technical support and a free three-year warranty.

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About Megger

Power on

At Megger, we understand that keeping the power on is essential for the success of your business. That is why we are dedicated to creating, designing and manufacturing safe, reliable, easy-to-use portable test equipment backed by world-leading support and expertise.

We can assist your acceptance, commissioning and maintenance testing for predictive, diagnostic or routine purposes. By working closely with electrical utilities, standards bodies and technical institutions, we contribute to the dependability and advancement of the electrical supply industry ... keeping the Power on

Engineered for electrical contractors

Our engineers actively participate into regulars committees, meetings with all the big trade associations around the world, training organisations and government organisations, to undestand from first handthe needs of electrical contractors. So when new legislation or rules are introduced, you can count on Megger to put your interests first, because Megger products help customers all over the world, to improve their efficiency, reducing costs, and meeting standards.

It operates globally with dedicated field sales teams and distributors located all over the world and manufacturing plants in Germany, United States, Sweden and the United Kingdom.

The commitment of Megger to industry is reflected in its technical leadership and in being the first to design and introduce many key and innovative solutions to the markets.

Experienced Technical Service

Megger offers a full Repair and Calibration Service accredited to ISO9001:2015 and ISO14001:2015. Our trained repair technicians use only production spare parts and the latest test equipment to ensure that we give customers the highest standard of service for any instrument.

For information on having your instrument calibrated or repaired please contact us here https://megger.com/



Working beside our customers

Megger celebrate and participate of many events around the globe, so please be aware of all our activities in our website here https://megger.com/ to attend at our Technical Days, Calibration Days, Seminars, Webinars and Exhibitions near you. Get the benefit to share and learn from the experts to keep the Power on.







Technical specifications are subject to change without notice.

Megger.



Multifunction installation testers MFT1800 series

■ The tough all-in-one tester that offers even more convenience.



DET2/3 Advanced Earth Tester

Robust intrument to measure earth Electrode Resistance and Soil Resistivity.



Multimeters for electrical engineers AVO800 series

High end specialist multimeters that offer the features you will use.



DCM305E Earth Leakage Clampmeter

Designed to check earth leakage currents.

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