

# MFT1800 Multifunction Tester



- **Simple colour-coded test selection and large clear backlit display for ease of use**
- **Two wire non trip loop testing for fast repeatable results**
- **Phase rotation indication for verification of rotating machinery**
- **Type-B RCD and 3-phase RCD testing for industrial applications with no Earth**
- **3-terminal earth test and stakeless testing for spike resistance measurement**
- **EN61010 CATIV safety ratings and tough IP54 case**

## DESCRIPTION

The MFT1800 range consists of 3 instruments designed for testing low voltage electrical installations to IEC 60364. They provide all the tests required to complete the necessary electrical certification for industrial, commercial and domestic fixed wiring installations, including:

- System voltage and frequency measurement (TRMS)\*.
- Insulation test at 100 V\*, 250 V, 500 V and 1000 V\*
  - Including input protection against live circuits up to 600 V even when insulation test is locked-on
- Continuity resistance at 200 mA or 15 mA\*
  - Automatic – no need to press TEST so leaving both hands free to hold probes.
- Resistance range up to 100 kΩ
  - With fast continuity buzzer and selectable thresholds
- 2-wire Loop test
  - Non-trip (RCD) and high-current testing
  - Including Phase-to-Phase
- Prospective fault current measurement
  - Up to 20 kA
- RCD testing including:
  - Type AC, A, S, B\* and programmable RCDs
  - 1/2 x I, 1 x I, 2 x I and 5 x I
  - 3-phase RCDs\*
  - Fast ramp test
  - Auto-test routine
  - Fault (Touch) voltage display

- Earth testing
  - 2-pole,
  - 3-pole
  - ART
  - Stakeless techniques

All instruments are IEC 61010 CAT IV 300 V rated for connection to low voltage systems with no protective device, so safe for connection anywhere on the system up to the source transformer without risk of damage from large transient spikes.

The unique modern styling allows it to be operated while stood on the floor, a ladder-shelf or platform, hung around the neck or hand-held. Dual TEST and LOCK buttons – one pair at each end – make the testers easy to operate with either the left or right hand.

Quick to pick up and use, the rotary controls are colour coded to make range selection easy and fast. They also reduce the chance of using the wrong function or range. The large crystal clear backlit display uses the patented Megger digital/analogue arc, providing indication of fluctuating readings while the dual digital readout shows precise values of key measurements simultaneously with the test parameters, such as the output voltage on insulation testing as well as the resistance value in MΩ.

Visible and audible safety warnings are paramount when testing high-energy systems, and the MFT1800 range includes full input protection and safety warnings when a hazardous voltage is present. If live voltages exist on a circuit during insulation or continuity testing, the voltage is displayed on the screen. If this voltage exceeds a safe level, further testing is inhibited and a warning beep sounds.

The MFT1835 features internally rechargeable batteries and charger with a charge time of less than 4 hrs, so reducing the cost of ownership

Fully compliant with all requirements of IEC 60364 derived standards including VDE 0100 and BS 7671, the new MFT includes all the latest measurement technology in a lightweight compact design and fully protected and usable on single phase and 3 phase installations.

New measurement functions include two wire non-trip loop test technology for fast repeatable results, comprehensive testing of RCDs including type B and the latest clamp-on techniques for Earth testing.

The MFT1835 includes built in memory and Bluetooth® communications for downloading of memory using Megger Download Manager (supplied) for simple form filling of test results using the optional Megger PowerSuite® software.

The new MFT1800 series has been designed for tough environments and ultimate reliability. Features include a rubber over mould for extra protection and grip, IP54 protection against dust and water and an EN61010 Cat IV safety rating. Its class leading input protection ensures the new MFT can withstand accidental misuse and voltage transients when other testers can't.

All this in an intuitive and easy to use instrument with no hidden menus or complicated screens. Tests are easily selected using the colour coded rotary switches with results clearly displayed on the high contrast dual measurement backlit display.

Included with the instrument are a standard 3-wire leadset and a mains test lead, a switched probe for fast and easy testing, a full 12-month calibration certificate and warranty upgradeable to 3 years. The MFT is supplied in a robust moulded case with plenty of additional space for optional extras like a few tools and the earth electrode test kit, comprising 2 spikes and 3 long test leads.

\* model dependant

\*\* requires optional accessory

### SELECTION CHART

Insulation ranges	MFT1815	MFT1825	MFT1835
100 V			■
250 V, 500 V	■	■	■
1000 V		■	■
Test voltage display	■	■	■
Adjustable buzzer threshold		■	■
<b>Continuity and resistance ranges</b>			
200 mA test	■	■	■
15 mA test		■	■
Adjustable buzzer threshold	■	■	■
<b>RCD tests</b>			
1/2 x I, 2 x I, 5 x I RAMP RCD test		■	■
1 x I & fast ramp	■	■	■
Auto RCD test		■	■
Type A & AC RCDs	■	■	■
Type S RCDs		■	■
Type B (pure DC) RCDs			■
Programmable RCD		■	■
3-phase RCD (no Earth)		■	■
10 mA RCD		■	■
30 mA, 100 mA, 300 mA, 500 mA RCD	■	■	■
1000 mA RCD		■	■
<b>Loop testing</b>			
2-wire non-tripping L~PE	■	■	■
2-wire high current L~L & L~N	■	■	■
50 V to 480 V (L~N) 50 V to 280 V (L~PE)	■	■	■
Phase to Phase tests (L~L)		■	■
PSCC & PFC (20kA max)	■	■	■
Touch-voltage display (0 V~253 V)	■	■	■
<b>Earth test</b>			
2-pole**		■	■
3-pole**		■	■
3-pole ART technique**			■
Stakeless method**			■
<b>Other features</b>			
Supply measurement	■	■	■
True RMS			■
Current measurement**		■	■
Phase rotation		■	■
Backlight	■	■	■
Auto power-down	■	■	■
Calibration certificate supplied	■	■	■
Rechargeable batteries/Chgr included			■
SP5 Switched probe included	■	■	■
3-year warranty	■	■	■
Onboard memory with Bluetooth download			■
CAT IV 300 V	■	■	■
IP54	■	■	■

### Insulation test

Output voltage	-0% +20% at rated load or less
Voltage display	±3% ±3 digits ±0.5% of rated voltage
Short circuit current	1.5 mA nominal test current
Test current on load	1 mA at min pass values of insulation

### Measurement accuracy

1000 Volts	10 kΩ ~ 999 MΩ	±3% ±2 digits
500 Volts	10 kΩ ~ 500 MΩ	±3% ±2 digits
	>500 MΩ	±10% ±4 digits
250 Volts	10 kΩ ~ 250 MΩ	±3% ±2 digits
	>250 MΩ	±10% ±4 digits
100 Volts	10 kΩ ~ 100 MΩ	±3% ±2 digits
	>100 MΩ	±10% ±4 digits

### Continuity / resistance

0.01 Ω ~ 99.9 Ω	±2% ±2 digits
100 Ω ~ 99.9 kΩ	±5% ±2 digits
Open circuit voltage	5 V ±1 V
Test current (0 Ω ~ 2 Ω)	205 mA ± 5 mA 15 mA ±5 mA (user selectable)

### Loop test

Live to earth supply	48 V ~ 280 V (45 Hz ~ 65 Hz)
Live to live supply	48 V ~ 480 V (45 Hz ~ 65 Hz)
L-E tests*	±5% 0.05 Ω ± Noise margin

### L-N/L-L tests

0.1 Ω ~ 39.9 Ω	±5% ±0.03 Ω
40.0 Ω ~ 1000 Ω	±10% ±0.05 Ω

Display range	0.01 Ω ~ 1000 Ω
Live to earth PFC range	20 kA
Live to live PSCC range	20 kA

### RCD tests

Supply up to 100 mA	48 V ~ 480 V (45 Hz ~ 65 Hz)
Supply up to 1 A	48 V ~ 280 V
RCD type	Type AC, A, S Type B (pure dc)
No trip test (1/2xI)	-10% ~ -0%
Trip test (1xI, 2xI & 5xI)	+0% ~ +10%
Ramp test	
Touch voltage (0 ~ 253 V)	+5% +15% ±0.5 V
Trip time	±1% ±1 ms
Trip current	±5%
Step increments	
VAR (variable RCD selection)	10 mA ~ 50 mA 1 mA steps 50 mA ~ 500 mA 5 mA steps 500 mA ~ 1000 mA 10 mA steps

### Supply measurement

Voltage	10 V ~ 600 V (15 ~ 400 Hz) True RMS ±3% ± 1 V ±2 digits
Phase rotation indication	L1-L2-L3 & L1-L3-L2
Frequency	15 Hz ~ 99 Hz ±0.5% ±1 digit 100 Hz ~ 400 Hz ±2.0% ±2 digit
Frequency resolution	0.1 Hz

### Power

MFT1710 & MFT1720:	IEC LR6 type AA alkaline (6 cells - supplied)
MFT1730:	1.2 V NiMH (rechargeable pack of 6 – supplied) Mains charger for on-board re-charging (4 hours typical) 12 V car charger (cigar lighter lead - optional)

### Earth test

Resolution	0.01 Ω
Current	0.45 mA or 4.5 mA
Noise rejection	20 V pk/pk (7 V rms).
Max probe resistances Rp & Rc	100 kΩ @ 50 V 5 kΩ @ 25 V
2 & 3 pole method (0.01 Ω ~ 1.999 kΩ)	±2.0% ±3 digits

ART method (1.00 Ω ~ 1.999 kΩ)	±5.0% ±3 digits
Stakeless method (1.00 Ω ~ 199 Ω)	±7.0% ±3 digits

### Current (via optional clamp meter)

	±5.0% ±3 digits.
Range	0.1 mA to 200 A ac
Resolution	0.1 mA

### mV Sensor input

including temperature (third party module)	±1.0% ±2 digits
Range	0.0 mV to ±199.9 mV dc
Resolution	0.1 mV

### Design standards

#### Safety

IEC 61010-1:2010
IEC 61010-30:2010
IEC 61010-031:2008
600 V Cat III / 300 V Cat IV (Max Phase to Phase 600 V)
IEC 61557:2007 parts 1 to 10

#### EMC

IEC61326 edition 2 location class B
-------------------------------------

#### Environmental

Temperature (operational)	-10 °C ~ +55 °C
Temperature (storage)	-25 °C ~ +70 °C
Operating humidity	90% R.H. at +40 °C max
Max altitude	2000 m

Weight	1 kg (with batteries, excluding case)
--------	---------------------------------------

Moisture/dust ingress protection	IP54
----------------------------------	------

Calibration Temperature:	+20 °C
--------------------------	--------

#### Temperature effects

Temperature coefficient:	<0,1% per °C
--------------------------	--------------

\* Reference conditions apply.

For test environments see service data.

The word PowerSuite is a registered trademark of Megger Limited.

The Bluetooth word mark and logo are owned by the Bluetooth SIG, Inc. and any use of such marks by Megger is under licence.

### ORDERING INFORMATION

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
MFT1815-SC-DE	1001-081	<b>Optional accessories</b>	
MFT1825-SC-DC	1001-088	Soft carry case with lead/document pouch	6420-143
MFT1835-SC-DE	1001-093	Switched probe SP5 (silicone)	1001-687
MFT1815-SC-FR	1001-097	Fused 10 A test lead set (red/green) with prods and clips	1001-977
MFT1825-SC-FR	1001-098	ETL30, 30 m extension test lead	1000-215
MFT1835-SC-FR	1001-099	ETL50, 50 m extension test lead	1000-217
<b>Included accessories</b>		12 V charger lead	6280-332
Printed quickstart guide		Earth spike test kit	1001-810
Full user guide on CD			
Calibration certificate			
Switched probe SP5	1001-878		
Neck strap - Megger embroidered	2001-509		
3 wire lead set with prods and clips	1001-860		
Euro mains test lead SIA45	2000-674		
Battery charger	2001-697		

**UK**  
Archcliffe Road Dover  
CT17 9EN England  
T +44 (0) 1304 502101  
F +44 (0) 1304 207342  
UKsales@megger.com

**UNITED STATES**  
4271 Bronze Way  
Dallas TX 75237-1019 USA  
T 800 723 2861 (USA only)  
T +1 214 333 3201  
F +1 214 331 7399  
USsales@megger.com

**OTHER TECHNICAL SALES OFFICES**  
Valley Forge USA, College Station USA,  
Sydney AUSTRALIA, Täby SWEDEN, Ontario  
CANADA, Trappes FRANCE, Oberursel  
GERMANY, Aargau SWITZERLAND, Kingdom  
of SAUDI ARABIA, Mumbai INDIA, Johannesburg  
SOUTH AFRICA, Chonburi THAILAND

**CERTIFICATION ISO**  
Registered to ISO 9001:2000 Cert. no. Q 09290  
Registered to ISO 14001:1996 Cert. no. EMS 61597

**MFT1800\_DS\_eu\_V04**  
www.megger.com  
Megger is a registered trademark