

# MFT1800

## Multifunction Tester



- **Simple colour-coded test selection and large clear backlit display for ease of use**
- **Two and three wire non-trip loop testing for RCD protected circuits**
- **Internal memory and Bluetooth® communications**
- **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
- **Non-trip loop test**
  - Earth loop test
  - 2 and 3 wire non-trip range
  - 2 wire Hi current 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 and three wire non-trip loop test technology for RCD protected circuits, 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.

## SELECTION CHART

	MFT1815	MFT1825	MFT1835
<b>Insulation ranges</b>			
100 V			■
250 V, 500 V	■	■	■
1000 V	■	■	■
Test voltage display	■	■	■
Adjustable buzzer threshold		■	■
Continuity and resistance ranges			
200 mA test	■	■	■
15 mA test		■	■
Adjustable buzzer threshold	■	■	■
<b>RCD tests</b>			
1/2 x I, 1 x I, 5 x I RAMP RCD test	■	■	■
2 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>Earth test</b>			
2-pole**		■	■
3-pole**		■	■
3-pole ART technique**			■
Stakeless method**			■

	MFT1815	MFT1825	MFT1835
<b>Loop testing</b>			
2-wire and 3-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>Other features</b>			
Supply measurement	■	■	■
True RMS			■
Current measurement**		■	■
Phase rotation	■	■	■
Backlight	■	■	■
Auto power-down	■	■	■
Calibration certificate supplied	■	■	■
Rechargeable batteries/charger included			■
SP5 Switched probe included	■	■	■
3-year warranty (on registration)	■	■	■
Onboard memory with Bluetooth download			■
CAT IV 300 V	■	■	■
IP54	■	■	■

\* model dependant

\*\* requires optional accessory

## SPECIFICATIONS

### Insulation test

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

### Insulation accuracy

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

### Resistance and continuity

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 ~ 500 V (45 Hz ~ 65 Hz)  
 L-N/L-L tests - ±5% ±3 digits

### L-E tests\*

0.1 Ω ~ 39.9 Ω ±5% - ±5 digits ± noise margin  
 40.0 Ω ~ 999 Ω - ±10% ±5 digits  
 Display range - 0.01 Ω ~ 999 Ω  
 Live to earth PFC range - 20 kA  
 Live to live PSCC range - 20 kA

\* Reference conditions apply.

For test environments see service data.

### 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

-10% ~ -0%  
 (1/2xl)

#### Trip test

+0% ~ +10%  
 (1xl, 2xl & 5xl)

### Ramp test

**Touch voltage** +5% +15% ±0.5 V  
 (0 ~ 253 V)

#### Trip time

±1% ±1 ms

#### Trip current

±3%

### Step increments

**VAR** 10 mA ~ 50 mA 1 mA steps  
 (variable RCD selection)  
 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 digits
Frequency resolution	0.1 Hz

### Power supply

MFT1815 & MFT1825:  
 IEC LR6 type AA alkaline  
 (6 cells - supplied)

### MFT1835:

1.2 V NiMH (rechargeable 6 cells supplied)  
 Mains charger for on-board re-charging (4 hours typical) 12 V car charger (cigar lighter lead - optional)

### Earth / ground 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

(MFT1835)

including temperature (third party module)

±1.0% ±2 digits

Range - 0.0 mV to ±199.9 mV dc

Resolution 0.1 mV

### Data storage

(MFT1835)

**Capacity** - 1000 results

Bluetooth communication

## 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

**Operating temperature range and humidity** -10 °C ~ +55 °C  
 90% R.H. at +40 °C max

**Temperature (storage)** -25 °C ~ +70 °C

**Maximum altitude** 2000 m

**Weight (instrument and case)** 1 kg (with batteries, excluding case)

**Dimensions (instrument and case)** 150 x 85 x 235 mm

**IP rating** IP54

**Calibration temperature** +20 °C

### TEMPERATURE EFFECTS

**Temperature coefficient** <0,1% per °C

## ORDERING INFORMATION

Description	Order Code	Description	Order Code
MFT1815-AU	1005-270	<b>Included accessories</b>	
MFT1815-CH-DE/FR	1002-402	Printed quickstart guide	
MFT1815-SC-DE/NL/EN	1002-403	Full user guide on CD	
MFT1815-SC-FR/ES	1002-405	Calibration certificate	
MFT1825-AU	1002-406	Switched probe SP5	1007-157
MFT1825-CH-DE/FR	1002-407	Neck strap - Megger embroidered	2001-509
MFT1825-SC-DE/NL/EN	1002-408	3 Wire lead set with prods and clips	1001-991
MFT1825-SC-FR/ES	1002-410	Euro mains test lead SIA45 (not AU)	2000-674
MFT1835-AU	1002-411	AU/NZ plug test lead (AU only)	6220-828
MFT1835-CH-DE/FR	1002-620	AC battery charger (MFT1835 only)	1002-736
MFT1835-DE+P'KAL Manager software	1002-414	<b>Optional accessories</b>	
MFT1835-SC-DE/NL/EN	1002-415	Soft carry case with lead/document pouch	6420-143
MFT1835-SC-FR/ES	1002-417	Fused 10 A test lead set (red/blue/green) with prods and clips	1001-975
		ETL30 Extension Test Lead 30 m	1000-215
		ETL50 Extension Test Lead 50 m	1000-217
		Cigar lighter adapter for battery charging.	6280-332
		Earth electrode kit	1001-810

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