

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.

* model dependant

** requires optional accessory

SELECTION CHART

	MFT1815	MFT1825	MFT1835
Insulation ranges			
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	■	■	■

RCD tests			
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		■	■
Loop testing			
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)	■	■	■
Earth test			
2-pole**		■	■
3-pole**		■	■
3-pole ART technique**			■
Stakeless method**			■
Other features			
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	■	■	■

SPECIFICATIONS

Insulation test

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

Insulation accuracy

1000 Volts	10 k Ω ~ 999 M Ω	$\pm 3\%$ ± 2 digits
500 Volts	10 k Ω ~ 500 M Ω	$\pm 3\%$ ± 2 digits
	>500 M Ω $\pm 10\%$	± 4 digits
250 Volts	10 k Ω ~ 250 M Ω	$\pm 3\%$ ± 2 digits
	>250 M Ω $\pm 10\%$	± 4 digits
100 Volts	10 k Ω ~ 100 M Ω	$\pm 3\%$ ± 2 digits
	>100 M Ω $\pm 10\%$	± 4 digits

Resistance and continuity

0.01 Ω ~ 99.9 Ω	-	$\pm 2\%$ ± 2 digits
100 Ω ~ 99.9 k Ω	-	$\pm 5\%$ ± 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 - $\pm 5\%$ ± 3 digits

L-E tests*

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

$\pm 1\%$ ± 1 ms

Trip current

$\pm 3\%$

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 $\pm 3\%$ ± 1 V ± 2 digits
Phase rotation indication	L1-L2-L3 & L1-L3-L2
Frequency	15 Hz ~ 99 Hz $\pm 0.5\%$ ± 1 digit 100 Hz ~ 400 Hz $\pm 2.0\%$ ± 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 k Ω @ 50 V
 5 k Ω @ 25 V

2 & 3 pole method

(0.01 Ω ~ 1.999 k Ω)
 $\pm 2.0\%$ ± 3 digits

ART method

(1.00 Ω ~ 1.999 k Ω)
 $\pm 5.0\%$ ± 3 digits

Stakeless method

(1.00 Ω ~ 199 Ω)
 $\pm 7.0\%$ ± 3 digits

Current

(via optional clamp meter)

$\pm 5.0\%$ ± 3 digits.

Range - 0.1 mA to 200 A ac

Resolution 0.1 mA

MV sensor input

(MFT1835)

including temperature (third party module)

$\pm 1.0\%$ ± 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 IEC 61326 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	Included accessories	
MFT1815-CH-DE/FR	1002-402	Switched probe SP5	1001-878
MFT1815-SC-DE/NL/EN	1002-403	Neck strap - Megger embroidered	2001-509
MFT1815-SC-FR/ES	1002-405	3 Wire lead set with prods and clips	1001-991
MFT1825-AU	1002-406	Euro mains test lead SIA45 (not AU)	2000-674
MFT1825-CH-DE/FR	1002-407	AU/NZ plug test lead (AU only)	6220-828
MFT1825-SC-DE/NL/EN	1002-408	AC battery charger (MFT1835 only)	1002-736
MFT1825-SC-FR/ES	1002-410	Optional accessories	
MFT1835-AU	1002-411	Soft carry case with lead/document pouch	6420-143
MFT1835-CH-DE/FR	1002-620	Fused 10 A test lead set (red/blue/green) with prods and clips	1001-975
MFT1835-DE+P'KAL Manager software	1002-414	ETL30 Extension Test Lead 30m	1000-215
MFT1835-SC-DE/NL/EN	1002-415	ETL50 Extension Test Lead 50m	1000-217
MFT1835-SC-FR/ES	1002-417	Cigar lighter adapter for battery charging.	6280-332
Included accessories		Earth electrode kit	1001-810
Printed quickstart guide			
Full user guide on CD			
Calibration certificate			

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CERTIFICATION ISO
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