

## MFT1800 Series 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.

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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 for certification software such as Megger CertSuite ([certsuite.info](http://certsuite.info)).

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

|  | MFT1815 | MFT1825 | MFT1835 |
|--|---------|---------|---------|
| <b>Insulation ranges</b>                 |         |         |         |
| 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, 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**                       |         |         | ■       |
| <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  | ■       | ■       | ■       |
| 3-year warranty (on registration)        | ■       | ■       | ■       |
| Onboard memory with Bluetooth® download  |         |         | ■       |
| CAT IV 300 V                             | ■       | ■       | ■       |
| IP54                                     | ■       | ■       | ■       |

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### 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

|                   |                |                |
|-------------------|----------------|----------------|
| <b>1000 Volts</b> | 10 kΩ ~ 999 MΩ | ±3% ±2 digits  |
| <b>500 Volts</b>  | 10 kΩ ~ 500 MΩ | ±3% ±2 digits  |
|                   | >500 MΩ        | ±10% ±4 digits |
| <b>250 Volts</b>  | 10 kΩ ~ 250 MΩ | ±3% ±2 digits  |
|                   | >250 MΩ        | ±10% ±4 digits |
| <b>100 Volts</b>  | 10 kΩ ~ 100 MΩ | ±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                                  |
| <b>Open circuit voltage</b>     | 5 V ±1 V                                       |
| <b>Test current (0 Ω ~ 2 Ω)</b> | 205 mA ± 5 mA<br>15 mA ±5 mA (user selectable) |

#### Loop test

|                             |                              |
|-----------------------------|------------------------------|
| <b>Live to earth supply</b> | 48 V ~ 280 V (45 Hz ~ 65 Hz) |
| <b>Live to live supply</b>  | 48 V ~ 500 V (45 Hz ~ 65 Hz) |
| <b>L-N/L-L tests</b>        | ±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

|                            |                                |
|----------------------------|--------------------------------|
| <b>Supply up to 100 mA</b> | 48 V ~ 480 V (45 Hz ~ 65 Hz)   |
| <b>Supply up to 1 A</b>    | 48 V ~ 280 V                   |
| <b>RCD type</b>            | Type AC, A, S Type B (pure DC) |
| <b>No trip test</b>        | 10% ~ -0% (1/2xl)              |
| <b>Trip test</b>           | +0% ~ +10% (1xl, 2xl & 5xl)    |

#### Ramp test

|                      |                             |
|----------------------|-----------------------------|
| <b>Touch voltage</b> | +5% +15% ±0.5 V (0 ~ 253 V) |
| <b>Trip time</b>     | ±1% ±1 ms                   |
| <b>Trip current</b>  | ±3%                         |

#### Step increments

|                          |   |
|--------------------------|---|
| <b>VAR</b>               | 10 mA ~ 50 mA 1 mA steps                                  |
| (variable RCD selection) | 50 mA ~ 500 mA 5 mA steps<br>500 mA ~ 1000 mA 10 mA steps |

#### Supply measurement

|                |  |
|----------------|--|
| <b>Voltage</b> | 10 V ~ 600 V (15 ~ 400 Hz) True RMS<br>±3% ± 1 V ±2 digits |
|----------------|--|

**Phase rotation indication:** L1-L2-L3 & L1-L3-L2

|                  |   |
|------------------|---|
| <b>Frequency</b> | 15 Hz ~ 99 Hz ±0.5% ±1 digit<br>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

|                        |                       |
|------------------------|-----------------------|
| <b>Resolution</b>      | 0.01 Ω                |
| <b>Current</b>         | 0.45 mA or 4.5 mA     |
| <b>Noise rejection</b> | 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% ±5 digits

#### ART method

(1.00 Ω ~ 1.999 kΩ) ±5.0% ±5 digits

#### Stakeless method

(1.00 Ω ~ 199 Ω) ±7.0% ±5 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

# MFT1800 Series

## Multifunction tester

### DESIGN STANDARDS

|               |  |
|---------------|--|
| <b>Safety</b> | IEC 61010-1:2010   |
|               | IEC 61010-30:2010  |
|               | IEC 61010-031:2008   |
|               | 600 V CAT III / 300 V CAT IV<br>(Max Phase to Phase 600 V) |
|               | IEC 61557:2007 parts 1 to 10                               |
| <b>EMC</b>    | 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 co-efficient

<0,1% per °C

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### 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   | Calibration certificate   |            |
| MFT1815-SC-FR/ES                  | 1002-405   | Switched probe SP5  | 1007-157   |
| MFT1825-AU                        | 1002-406   | Neck strap - Megger embroidered                                   | 2001-509   |
| MFT1825-CH-DE/FR                  | 1002-407   | 3 Wire lead set with prods and clips                              | 1001-991   |
| MFT1825-SC-DE/NL/EN               | 1002-408   | Euro mains test lead SIA45 (not AU)                               | 2000-674   |
| MFT1825-SC-FR/ES                  | 1002-410   | AU/NZ plug test lead (AU only)                                    | 6220-828   |
| MFT1835-AU                        | 1002-411   | AC battery charger (MFT1835 only)                                 | 1002-736   |
| MFT1835-CH-DE/FR                  | 1002-620   | <b>Optional accessories</b>                                       |            |
| MFT1835-DE+P*KAL Manager software | 1002-414   | Soft carry case with lead/document pouch                          | 6420-143   |
| MFT1835-SC-DE/NL/EN               | 1002-415   | Fused 10 A test lead set (red/blue/green)<br>with prods and clips | 1001-975   |
| MFT1835-SC-FR/ES                  | 1002-417   | 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   |
|                                   |            | ETK30 (3 Pole Earth Test Kit)                                     | 1010-176   |
|                                   |            | MCC1010 Current measuring clamp                                   | 1010-516   |
|                                   |            | MVC1010 Voltage clamp   | 1010-518   |

#### SALES OFFICE

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#### MFT1800\_DS\_en\_V21

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