MFT1700 Series Multifunction Tester

**DESCRIPTION**

The MFT1700 series is a range of 4 instruments for testing low voltage electrical installations to BS7671. 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 start - no need to press TEST so leaving both hands free to hold probes
- Resistance range up to 100 kΩ with fast continuity buzzer at selectable thresholds
- 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
  - 3-phase RCDs*
- Auto-test routine
- Fault (Touch) voltage display
- Earth spike 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 right 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 handheld. Dual TEST and LOCK buttons - one pair at each end - makes the testers easy to operate left or right handed.

Quick to pick up and use, the 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 MFT1700 series 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 MFT1730 and MFT1735 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 light-weight compact design, fully protected and usable on single phase and 3 phase installations.
Key measurement functions include two and three wire non-trip loop test technology for fast repeatable results, comprehensive testing of RCDs including type B, and integrated 3-terminal and stakeless clamp techniques for earth electrode testing.

The MFT1730 includes built in memory and Bluetooth communications for downloading test results using Megger Download Manager (supplied). As an option, the MFT1730 is available complete with PowerSuite® Lite software as the MFT1730 On-Site. PowerSuite provides a professional solution to certification with electronic form completion from stored data within the MFT, either downloaded to a mobile device such as a Smartphone, or direct to a PC. See the separate datasheet on Megger PowerSuite software for further details.

The new MFT1700 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 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: 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

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### PRODUCT SELECTION CHART

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<tr>
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<td>Adjustable buzzer threshold</td>
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<tr>
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<tr>
<td>2 wire phase to phase L-L 50 V – 500 V</td>
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<tr>
<td>PSCC &amp; PFC (20 kA max.)</td>
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<td>Max. Zs display</td>
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<tr>
<td>Touch voltage display on faulty earth</td>
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<tbody>
<tr>
<td>2 &amp; 3 pole **</td>
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<tr>
<td>3 pole ART and Stakeless method **</td>
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### RCD tests

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<tbody>
<tr>
<td>1/2, 1, 5 x I &amp; ramp RCD test</td>
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<tr>
<td>Auto RCD test</td>
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<tr>
<td>Type AC, A &amp; S RCDs</td>
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<tr>
<td>Type B (pure DC) RCDs</td>
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<tr>
<td>Programmable RCD</td>
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<tr>
<td>3-phase RCD (no earth)</td>
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<tr>
<td>30, 100, 300 &amp; 500 mA RCD</td>
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<tr>
<td>10 mA &amp; 1000 mA RCD</td>
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### Other features

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<tr>
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<tr>
<td>True RMS</td>
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<tr>
<td>Leakage current measurement **</td>
<td>■</td>
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<tr>
<td>Phase rotation</td>
<td>■</td>
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<tr>
<td>Calibration certificate</td>
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<tr>
<td>Rechargeable batteries (charger included)</td>
<td>■</td>
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<tr>
<td>SPS Switched probe included</td>
<td>■</td>
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<tr>
<td>Warranty upgradeable to 3 years FREE</td>
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<tr>
<td>On board memory with Bluetooth download</td>
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<tr>
<td>CAT IV 300 V / CATIII 600 V</td>
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</table>
**SPECIFICATIONS**

**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

**Insulation accuracy**
- 1000 Volts: 10 kΩ ~ 999 MΩ ±3% ±2 digits
- 500 Volts: 10 kΩ ~ 500 MΩ ±3% ±2 digits
- 250 Volts: 10 kΩ ~ 250 MΩ ±3% ±2 digits
- 100 Volts: 10 kΩ ~ 100 MΩ ±3% ±2 digits

**Resistance and continuity**
- 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/neutral supply: 48 V ~ 280 V (45 Hz ~ 65 Hz)
- Live to live supply (not MFT1710): 48 V ~ 500 V†† (45 Hz ~ 65 Hz)
- L-N-L tests: ±5% ±5 digits
- L-E tests †: 0.1 Ω ~ 39.9 Ω ±5% ±5 digits ± noise margin
- 40.0 Ω ~ 1000 Ω ±10% ±5 digits
- 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, B (pure dc)
- No trip test: (1/2xI) ±10% ~ ±0%
- Trip test: (1x, 2x & 5x) ±0% ~ ±10%
- Ramp test: Touch voltage: +5% ±15% ±0.5 V
- Trip time: ±1% ±1 ms
- Trip current: ±5%

**Touch voltage**
- 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
- Frequency resolution: 0.1 Hz

**Power supply**
- MFT1710 and MFT1720: IEC LR6 type AA alkaline (6 cells - supplied)
- MFT1730 and MFT1735: 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 / 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 Ω): ±5.0% ±3 digits**
- Stakeless method (1.00 Ω ~ 199 Ω): ±7.0% ±3 digits**
- Range: 0.1 mA to 200 A ac
- Resolution: 0.1 mA

**MV sensor input**
- (MFT1730 and MFT1735)
- Including temperature (third party module): ±1.0% ±2 digits
- Range: 0.0 mV to ±199.9 mV dc
- Resolution: 0.1 mV

**Data storage**
- (MFT1730 and MFT1735)
- Capacity: 1000 results
- Bluetooth communication

**Safety**
- EC 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
ORDERING INFORMATION

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<td>1002-395</td>
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<td>MFT1720-BS</td>
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<td>MFT1730-BS</td>
<td>1002-400</td>
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<tr>
<td>MFT1735 - BS</td>
<td>1003-319</td>
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</table>

Included accessories

- Printed quick start guide
- Full user guide on CD
- Calibration certificate
- Switched probe SP5 (not with MFT1710) 1002-774
- Neck strap - Megger embroidered 2001-509
- 3 Wire lead set with prods and clips 1001-991
- Mains plug test lead (BS1363) 6220-810
- AC battery charger (MFT1730 and MFT1735 only) 1002-736
- Earth electrode kit (MFT1735 Only) 1001-810

Optional accessories

- PowerSuite Lite 1000-631
- Euro mains test lead SIA45 2000-674
- Fused 10 A test lead set (red/blue/green) with prods and clips 1001-975
- ETL30 Extension Test Lead 30m 1000-215
- ETL50 Extension Test Lead 50m 1000-217
- Cigar lighter adapter for battery charging 6280-332
- Switched Probe SP5 (silicone) 1001-687
- ICLAMP Current measuring clamp 1001-012
- VCLAMP Voltage inducing clamp, calibration check pcb (for stakeless test) and lead 1001-013

For test environments see service data.

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