

MFT1741+ Multifunction Tester



- Testing of Electric Vehicle Charge Points*
- Enhanced non-trip loop impedance measurement technology
- “Confidence meter” measurement analysis (patent pending)
- Full single and 3 phase compliant installation testing
- 10 mA to 1 A single and 3 phase RCD testing
- Earth testing and stake-less testing for electrode resistance measurement*
- Simple colour-coded test selection
- Ambidextrous operation
- Internal memory and Bluetooth® communications
- EN61010 CAT IV safety rating and tough IP54 case

DESCRIPTION

The MFT1741+ multifunction tester is an instrument designed for testing low voltage electrical installations and especially in locations that suffer from high electrical noise. It provides all the tests required to complete the necessary electrical certification for industrial, commercial and domestic fixed wiring installations, and includes:

- TRMS System voltage and frequency measurement
- 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 impedance testing, with:
 - New 3 wire non-trip technology
 - New confidence meter measurement
 - 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
 - Testing of Electric Vehicle Charge Points RCD's*
 - 3-phase RCDs
 - Auto-test routine
 - EV Charge Point RCD Testing
- Earth spike testing
 - 2-pole/3-pole*, ART* and Stake-less* techniques

* With appropriate optional accessories.

New Loop Impedance testing technology:

The MFT1741+ includes a new non-trip loop testing technology that:

- Prevents any influence the RCD may present to the total loop impedance value.
- Faster non-trip loop testing down to 8 seconds.

This technique also allows testing of loop impedance through 10mA type ac and Type A RCDs.

New “Confidence meter” measurement analysis (Patent pending)

Overlaying the new non-trip loop impedance measurement is the new Megger “Confidence meter”. As loop impedance values can be dramatically affected by circuit noise, the Confidence Meter displays the degree of confidence in the accuracy of the measured loop impedance. Using the digital ARC to indicate the analytical process, the measurement is continually monitored and adjusted when circuit noise is present, resulting in a dramatically improved and repeatable test result.

New electric vehicle charge point testing

The MFT1741+ includes an automatic EV Charge Point RCD test sequence, including the 6 mA dc test*. Test results can be reviewed or saved to memory and reviewed later.

APPLICATIONS:

The MFT1741+ offers a wide range of test functions, designed for all electrical installation testing and verification of low voltage building wiring and distribution testing scenarios. The MFT1741+ is IEC 61010 CAT IV 300 V rated for safe connection anywhere within the LV network on single and 3 phase systems.

The unique modern styling allows it to be operated while stood on the floor, whilst up a ladder or platform, and optimised for hanging around the user's neck. Dual TEST and LOCK buttons - one pair at each end - makes the testers easy to operate left or right handed.

GENERAL FEATURES:

Quick to pick up and use, the function 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 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 MFT1741+ 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 MFT1741+ features internally rechargeable batteries and charger with a charge time of less than 4 hrs, so reducing the cost of ownership.

The new MFT1741+ 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. Included with the instrument: standard 3-wire lead-set 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 warranty, free of charge. The MFT1741+ is supplied in a large soft pouch 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.

PRODUCT SELECTION CHART

| | MFT1741+ |
|---|----------|
| 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 | ■ |
| Loop testing | |
| 2 and 3 wire non-tripping L-PE 50 V ~ 280 V | ■ |
| 2 wire Hi current L-N 50 V ~ 280 V | ■ |
| 2 wire phase to phase L-L 50 V ~ 500 V | ■ |
| PSCC and PFC (20 kA max.) | ■ |
| Max. Zs display | ■ |
| R1 + R2 value | |
| Touch voltage display on faulty earth | ■ |
| Earth electrode test | |
| 2 and 3 pole * | ■ |
| 3 pole ART and Stakeless method * | ■ |
| RCD tests | |
| 1/2, 1, 5 x I and ramp RCD test | ■ |
| Auto RCD test | ■ |
| Type AC, A and S RCDs | ■ |
| Type B (pure DC) RCDs | ■ |
| Programmable RCD | ■ |
| 3-phase RCD (no earth) | ■ |
| 10, 30, 100, 300 and 500 mA RCD | ■ |
| Auto sequence for EV charge point RCDs* | ■ |
| Other features | |
| Supply measurement | ■ |
| True RMS | ■ |
| Leakage current measurement * | ■ |
| Phase rotation | ■ |
| Calibration certificate | ■ |
| Rechargeable batteries (charger included) | ■ |
| SP5 Switched probe included | ■ |
| Warranty upgradeable to 3 years FREE | ■ |
| On board memory with Bluetooth® download | ■ |
| CAT IV 300 V / CATIII 600 V | ■ |
| Hard moulded case | |
| Soft pouch with additional storage | ■ |
| Confidence meter noise reduction | ■ |
| New hardware loop test platform | ■ |

* requires optional accessory

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 |
| | >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 |

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/neutral 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% ±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 |

† 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 | (1/2xl) -10% ~ -0% |
| Trip test | (1xl, 2xl and 5xl) +0% ~ +10% |
| EV | 30 mA ac, 6 mA dc (Mode 1 + 2) |

(Mode 1 + 2)

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 and 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

| | |
|---|--|
| Batteries | IEC LR6 type AA alkaline (6 cells - supplied) or 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 and Rc 100 kΩ @ 50 V 5 kΩ @ 25 V |
| 2 and 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

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

Data storage

Capacity: 1000 results
Bluetooth® communication

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

Operating temperature range and humidity

-10 °C ~ +55 °C
90% R.H. at +40 °C max

Storage temperature range and humidity

-25 °C ~ +70 °C

Maximum altitude

2000 m

Weight (instrument and case)

1 kg (with batteries, excluding case)

Dimensions (instrument and case)

220 mm H x 390 mm W x 285 mm D

IP rating

IP54

Calibration temperature

+20 °C

Temperature co-efficient

<0,1% per °C for test environments
see service data.

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

| Description | Order Code |
|---|------------|
| MFT1741+-BS | 1012-611 |
| Included accessories | |
| Printed quick start guide | |
| Full user guide on CD | |
| Calibration certificate | |
| Switched probe SP5 | 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 | 1002-736 |
| Large soft pouch with extra storage | 1007-463 |
| Optional accessories | |
| Fused 10 A test lead set (red/blue/green) with prods and clips | 1001-975 |
| XTL30 Extension Test Lead 30 m | 2007-998 |
| XTL50 Extension Test Lead 50 m | 2207-997 |
| Cigar lighter adapter for battery charging. | 6280-332 |
| Switched Probe SP5 (silicone) | 1001-687 |
| MCC1010 Current measuring clamp | 1010-516 |
| MVC1010 Voltage inducing clamp, calibration check pcb (for stakeless test) and lead | 1010-518 |
| Electrode kit | 1001-810 |
| Test and carry pouch | 1006-408 |
| 3 Pole Earth Test Kit | 6210-160 |
| ETK30 (3 Pole Earth Test Kit) | 1010-176 |

SALES OFFICE

Megger Limited
Archcliffe Road Dover
CT17 9EN England
T +44 (0) 1304 502101
E UKsales@megger.com

MFT1741+_DS_en_V01

www.megger.com
ISO 9001
The word 'Megger' is a registered trademark

Megger[®]