

Megger[®]

MFT1500 Series Multifunction Tester

USER MANUAL

 **SAFETY WARNINGS**

- **Safety Warnings** and **Precautions** must be read and understood before the instrument is used. They **must** be observed during use.
- The circuit under test must be switched off, de-energised and isolated **before** test connections are made when carrying out insulation and continuity tests.
- Continuity of protective conductors and earthed equipotential bonding of new or modified installations **must** be verified before carrying out an earth fault loop impedance test, or RCD test.
- Circuit connections and exposed metalwork of an installation or equipment under test **must not** be touched.
- The live circuit warning and Automatic discharge are additional safety features and **should not** be regarded as a substitute for normal safe working practices.
- **Do not change** the rotary switch positions while a test is in progress.
- The LCD 'neon' voltage indicators **cannot** reveal a Neutral - Earth reversal. They **cannot** be relied upon to identify circuit correctness and are for guidance only.
- After insulation tests, capacitive circuits must be allowed to discharge **before** disconnecting test leads.
- The instrument **should not** be used if any part of it is damaged.
- Test leads, probes and crocodile clips must be in good order, clean and with no broken or cracked insulation.
- Ensure that hands remain behind guards of probes/clips when testing.
- UK Safety Authorities recommend the use of fused test leads when measuring voltage on high energy systems.
- Replacement fuses **must** be of the correct type and rating.
Failure to fit the correctly rated fuse **will** result in damage to the instrument in the event of an overload.
- The battery cover **must** be in place whilst conducting tests.

NOTE**THE INSTRUMENT MUST ONLY BE USED BY SUITABLY TRAINED AND COMPETENT PERSONS.**

Users of this equipment and/or their employers are reminded that Health and Safety Legislation requires them to carry out valid risk assessments of all electrical work so as to identify potential sources of electrical danger and risk of electrical injury such as inadvertent short circuits. Where the assessments show that the risk is significant then the use of fused test leads constructed in accordance with the HSE guidance note GS38 'Electrical Test Equipment for use by Electricians' should be used.

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Symbols used on the instrument are:



Caution: risk of electric shock



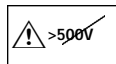
Caution: refer to accompanying notes



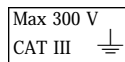
Equipment protected throughout by Double Insulation (Class II)



Equipment complies with current EU directives.



Maximum nominal system voltage of 500 V



Maximum 300 V a.c. CAT III to Earth

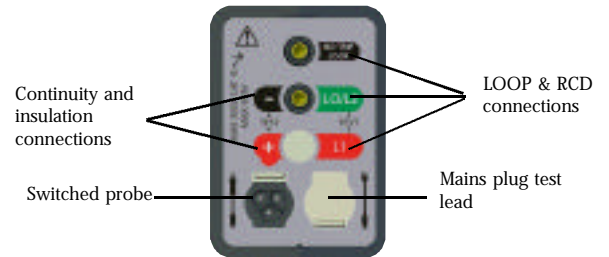
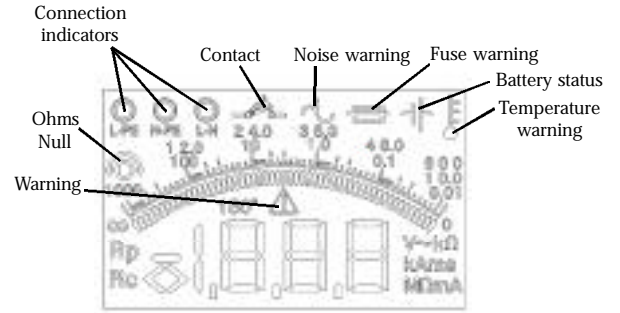
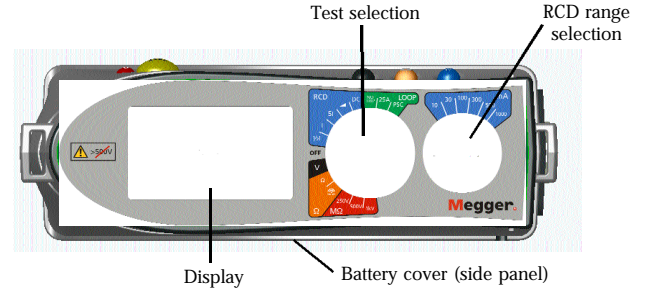
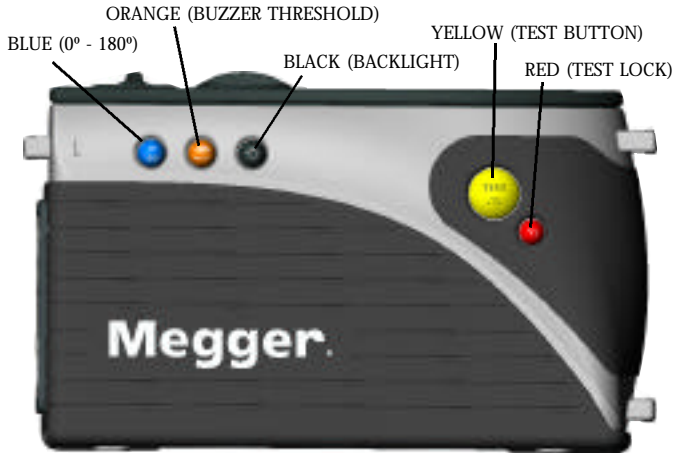
DESCRIPTION

Thank you for purchasing the MFT1500 Multifunction Tester. The MFT1500 series of tester is compact and designed to perform all of the functions required by the electrical contractor to fully test domestic, commercial and industrial wiring. Specially designed to comply with UK, European and other International wiring regulations and standards, the MFT1501 and MFT1502 may be used on all single and three phase systems with rated voltages up to 300 Volts a.c. rms to earth/ground.

All test leads supplied with the MFT1501 and MFT1502 form part of the measuring circuit of the instrument and must not be modified or changed in any way, or be used with any other electrical instrument or appliance.

A plug severed from the power cord **MUST** be destroyed, as a plug with bare conductors is hazardous in a live socket outlet.

OVERVIEW OF MFT1500 SERIES





REPLACING FUSES AND BATTERIES

Battery and Fuse fitting/Replacement



Battery type: 8 x 1.5 V Alkaline LR6 (AA)

Fuse type: 500 mA (F) HBC 10 kA 500 V

Low battery warning symbol 

Fuse blown symbol 

To test battery condition

With the MFT1500 switched to the OFF position, press the RED  test lock and the YELLOW TEST button together. The battery voltage is displayed. If the battery symbol  also appears the batteries need replacing.

To replace batteries

Switch off the instrument and disconnect (the instrument) from any electrical circuits.

Remove the battery cover.


Slide out the battery clip and remove the dead cells.

Refit new batteries following correct polarity as marked on the battery holder.

Replace the battery holder and cover.

Note: - Incorrect battery cell polarity can cause electrolyte leakage, resulting in damage to the instrument.

To replace the fuse

Should the main fuse fail, the symbol  will be displayed.

Disconnect the instrument from any circuits.

Remove the battery cover as above.

The blown fuse should be replaced with a 500 mA (F) HBC 10 kA 500 V fuse (Megger part no.25950-039)

Replace the battery cover.

OPERATION

GENERAL OPERATION

Note: These functions are generally apply and not limited to an individual test function.

Live circuit warning - Test Inhibit

Testing is automatically inhibited if:


During insulation testing - an external voltage >55 V is present on the terminals

During continuity testing - a voltage >10 V is present on the terminals


During RCD or No-Trip loop testing - a voltage >270 V is present



During Loop testing - a voltage >480 V is present

Test button lock

To lock the test button hold down the RED  test lock button whilst holding down the YELLOW TEST button.

Intelligent Backlight (MFT1502 only)

Both the display and range knobs have a backlight. To activate, press the BLACK  button.

To disable the Intelligent backlight function, press the BLACK  button and the RED  lock button together.

Repeat to enable the intelligent backlight.

Instrument Auto shut-of f

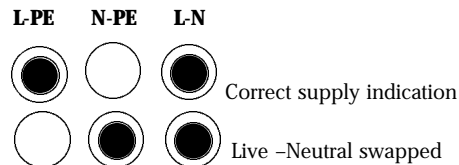
Automatically activated after 5 minutes of instrument inactivity.

To restore operation press the RED lock button or switch the instrument off and on.

Polarity Indication

If connected to a single-phase power supply by a plug or by the 3-wire lead set, three LCD 'neons' marked L-PE, N-PE and L-N respectively will indicate supply polarity.

If a voltage is detected between their respective two wires, the 'neon'(s) will activate.



Any other combinations should be investigated further. However the LCD 'NEONS' cannot be relied upon to identify circuit correctness and are for guidance only.

Note: - The presence of a voltage between phase and earth does not prove earth continuity, as the earth could have a high resistance and a voltage would still be measured. To test earth continuity refer to the sections on loop resistance or RCD testing.

Warning: The LCD 'Neons' are invalid when using the two wire lead-set and should be ignored.

ILLUMINATED SWITCHED PROBE SPL1000 (MFT1502 ONLY)

The Illuminated switched probe accessory replaces the RED 4 mm test lead. It can be used anywhere that the 4 mm lead set is specified in this user guide.

Operation

The YELLOW button duplicates the function of the TEST key on the instrument, allowing quick and easy testing.

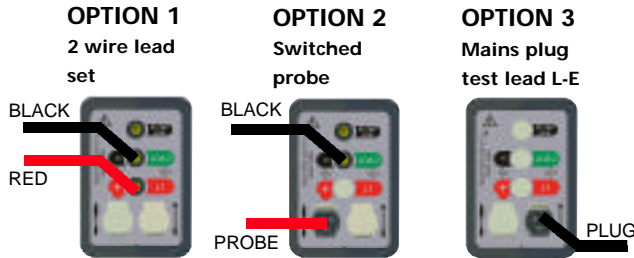
The BLACK switch operates a white LED, which illuminates the probe tip for use when testing under low light levels.

There is also a visual indication via a red/green LED to notify the user of the display status, the meanings are as follows:

Green : A valid result is present on the display or the continuity buzzer is buzzing.

Red: A warning is being shown on the display, testing will be inhibited.

VOLTAGE MEASUREMENT [V] TEST LEAD CONNECTION



Set the Rotary range knob to the [V] range

(The position of the right hand 'mA' rotary range knob does not matter)

Two wire lead set or Switched Probe connection

Using the 2-wire lead set OPTION 1 or OPTION 2

1. Connect the test leads as shown.
2. DC Voltage (V) or AC Voltage (V~) is automatically displayed.

OR Using the Mains plug Lead set (OPTION3)

Voltage between the L and E pins is displayed

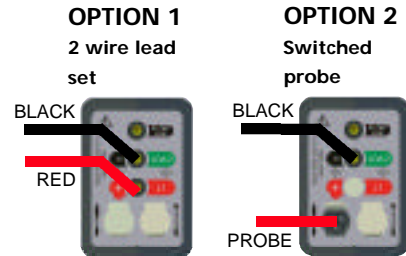
Note: - When connected to the circuit under test the instrument will automatically display AC or DC voltage measurement up to 500 V.

This function will continue to work if the fuse is blown.

CONTINUITY

Warning: Prior to any continuity testing, ensure the circuits under test are isolated and not live


TEST LEAD CONNECTION




Set the left hand rotary range knob to the range required.

(The position of the right hand rotary range knob does not matter).

Continuity measurement can be made using one of the 2 options shown above.

A continuity measurement is made automatically when the test leads are connected to the circuit under test. The contact  symbol on the display closes when a resistance of approximately 200 k or less is detected.

Lead Null (up to 9.99 Ω)

Short test probes or clips together and press the YELLOW TEST button on the instrument (or on the switched probe if fitted). The  will be displayed to indicate lead null is active.

This null value is stored until the YELLOW TEST button is pressed again.

To cancel the LEAD NULL, press the YELLOW TEST button.

Continuity Buzzer


Test leads OPTIONS 1 or 2 above

The MFT1500 buzzer will sound continuously if the resistance between the leads is less than a set limit (Default value 2 Ω).

If being used with the illuminated switched probe (OPTION 2) continuity is also indicated by a GREEN LED on the probe.

To turn off the buzzer press the TEST button whilst in BUZZER mode. The display will indicate ON or OFF status.

Buzzer threshold

The resistance at which the buzzer stops sounding can be changed to meet individual test requirements. Press the ORANGE  button to select the resistance limit.

Selectable limits of 2 Ω , 5 Ω , 10 Ω , 20 Ω , 50 Ω and 100 Ω .

This setting is stored even when the instrument is switched off.

Notes:-

Method of measurement

The 2-wire lead set must be used for this measurement. The instrument produces a d.c. voltage of nominally 4.5 V with a current limit of at least

200 mA when measuring 2 Ω .

Possible sources of error

Measurement results can be affected by the following:

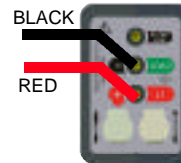
- The impedance of operating circuits connected in parallel.
- Impedance such as inductors that vary during the measurement.
- A poor connection to the circuit under test, which can give readings as much as 100 m Ω (0.10 Ω) high. The best way to avoid this error is to use sharp prods and press these firmly into the conductors being measured.

INSULATION RESISTANCE [M Ω] [250 V] [500 V] [1000 V]

Warning: Prior to any insulation testing, ensure the circuits under test are isolated and not live.

TEST LEAD CONNECTION

OPTION 1
2 wire lead set



OPTION 2
Switched probe



Set the left hand rotary range knob to the required INSULATION Range.

250 V Insulation measurement to 99.9 M

500 V Insulation measurement to 299 M


1000 V Insulation measurement to 499 M


(The position of the right hand rotary range knob does not matter.)

To initiate insulation testing press and hold the YELLOW TEST button on the instrument or the switched probe if connected.

Release the test button after the displayed reading has settled.

TEST LOCK

To lock down the test button press the YELLOW TEST button followed by the RED LOCK  button.

A warning triangle  will appear in the display while the test lock is active.

Press the YELLOW TEST button to stop the test.

Note: - A 1000 V warning is displayed whenever the 1000 V range is selected and the test button pressed

Warning: The test voltage will be permanently present on the test probes or crocodile clips when in the locked modes.

Notes: - Auto discharge - Auto discharge facility automatically and safely discharges connected circuit after test via 250 k resistor.

Live circuit warning - operates when connected to Live circuits > 25 V.

Test Inhibited - an audible alarm operates at >55 V. The instrument will not perform a test until the voltage source has been removed.

Method of measurement

A current limited (2 mA) d.c source is used, and the resistance is calculated from measurements of the voltage and current.

The voltage is only present when the test button is pressed or the test lock is active. A measurement of the terminal voltage is made before the test and if this exceeds 55 V the test is disabled. The reading is stable

with a circuit capacitance up to 5 μ F.

LOOP IMPEDANCE [LOOP] TESTING

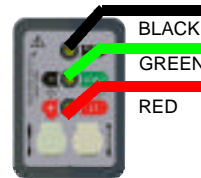
Loop impedance measurement can be made via installation sockets using the plug terminated test lead, OPTION 3, or at any other convenient point on the installation using a two/three wire lead set, OPTION 1 OR 2.

The MFT1501 and MFT1502 will measure the loop resistance from the supply end of the standard test leads, allowing for their resistance.

NON TRIPPING LOOP TESTS [NO TRIP]

Set the LEFT rotary range knob to the required LOOP range as described below:

OPTION 1
3 wire
measurement



OPTION 2
Switched
Probe



OPTION 3
Mains plug
test lead



(The position of the right hand rotary range knob does not matter.)

[NO TRIP] LOOP-TESTING - SINGLE PHASE TESTING ONLY

The NO TRIP loop test is a high resolution low current earth loop resistance measurement (Loop L-PE 0.01) range which does not trip RCDs with a rated current 30 mA or higher.

[NO TRIP] PHASE TO EARTH LOOP IMPEDANCE MEASUREMENT (AT A POWER SOCKET)

Test Lead set: OPTION 3

1. Select **NO TRIP** Loop test range.
2. Insert the plug into an installation socket.
3. Supply voltage and polarity are displayed.
4. The test will 'beep' and automatically start when voltage is detected.
5. Measured loop value is displayed

If desired the test can be repeated by pressing the YELLOW TEST button.

[NO TRIP] EARTH LOOP IMPEDANCE MEASUREMENT (NOT AT A POWER SOCKET)

Test Lead set: OPTION 1 or OPTION 2

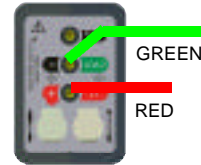
1. Firmly connect the GREEN lead to EARTH, the BLACK lead to NEUTRAL and the RED lead to PHASE.
2. Perform the loop test, as above for power socket.

If desired the test can be repeated by pressing the YELLOW TEST button.

HIGH CURRENT LOOP-TESTING [25 A]

Single Phase and Phase to Phase loop testing on circuits that are NOT protected by RCD

OPTION 1 2 wire lead set



OPTION 2 Switched probe



OPTION 3 Mains plug test lead



Set the instrument to the [25 A] Loop test range

25 A Phase to Earth loop impedance measurement (at a power socket):

Test Lead set: OPTION 3

1. Insert the plug into an installation socket.
2. Supply voltage and polarity are displayed.
3. The test will 'beep' and automatically start when voltage is detected.
4. Measured loop value is displayed.

If desired the test can be repeated by pressing the YELLOW TEST button.

25 A Phase-Earth loop impedance (not at a power socket):

Test Lead set: OPTION 1 or 2

1. Connect the GREEN lead to EARTH and the RED lead to PHASE
2. Supply voltage is displayed.

Warning: The LCD 'Neons' are invalid when using the two wire lead-set and should be ignored.

3. The test will automatically start when voltage is detected.
4. Measured loop value is displayed.

If desired the test can be repeated by pressing the YELLOW TEST button.

BONDED METALWORK TESTING

Test Lead set: OPTION 1 or 2

1. Connect the GREEN lead to the bonded metalwork.
2. Connect the RED lead to PHASE.
3. Supply voltage is displayed.

Warning: The LCD 'Neons' are invalid when using the two wire lead-set and should be ignored.

4. The test will automatically start when voltage is detected.
5. Measured loop value is displayed.

If desired the test can be repeated by pressing the YELLOW TEST button.

PHASE-NEUTRAL OR PHASE-PHASE LOOP IMPEDANCE

Test Lead set: OPTION 1 or 2

1. Connect the GREEN lead to NEUTRAL and the RED lead to PHASE (or the 2nd PHASE for Phase to Phase loop measurement).
2. The supply voltage is displayed.

Warning: The LCD 'Neons' are invalid when using the two wire lead-set and should be ignored.

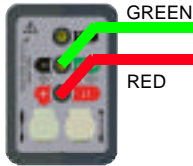
3. The test will automatically start when voltage is detected.
4. Measured loop resistance is displayed.

If desired the test can be repeated by pressing the YELLOW TEST button.

PROSPECTIVE SHORT CIRCUIT CURRENT [PSC]

OPTION 1

2 wire measurement



OPTION 2

Switched probe



Set the instrument to the [PSC] range

PSC is a 25 A two wire test.

PHASE TO EARTH PSC

Test Lead set: OPTION 1,2

1. For Single phase measurement connect the test leads as shown above.
For Phase to Phase measurement connect the GREEN lead to the 2nd Phase.
2. Supply voltage and polarity are displayed.
3. The test will 'beep' and automatically start when voltage is detected.
4. Measured PSC value is displayed.

If desired the test can be repeated by pressing the YELLOW TEST button.

PHASE TO NEUTRAL PSC

As for the 25 A Phase to Earth PSC test but with the following test lead connections:

1. Connect the GREEN lead to the NEUTRAL and the RED lead to PHASE.
2. The test will 'beep' and automatically start when voltage is detected.
3. Measured PSC value is displayed.

Notes :-

The PSC of a circuit is the largest Prospective Fault Current (PFC). In a single phase system, this would be the larger of the earth loop PFC and the neutral loop PFC. In a multi-phase system phase-phase loops also need to be considered and these can be measured using the Loop 25A switch position.

The PSC is calculated by using the sum:-

$$\text{PSC} = \frac{\text{Nominal supply voltage}}{\text{Loop resistance}}$$


The supply voltage used in the calculation depends on the measured voltage. The instrument uses the following voltage values:-

Actual measured voltage	Nominal voltage
> 45 V and < 80 V	55 V
>80 V and <150 V	110 V
>150 V and <300 V	230 V
>300 V	400 V

PSC measurement accuracy

An accurate PSC measurement requires an accurate measurement of the loop resistance. The difference of a few digits in the loop resistance measured will have a large effect on the PSC displayed.

Noise Indication

The  symbol is displayed when excessive noise caused by other equipment exists on the circuit under test. This noise can effect the accuracy of the loop measurement. The operator is advised to repeat the measurement or, if the noise symbol continually appears, investigate the cause.

Method of measurement

The phase-earth, phase-neutral or phase-phase loop resistance can be measured. The instrument takes a current from the supply and measures the difference between the unloaded and loaded supply voltages. From this difference it is possible to calculate the loop resistance. The test duration will depend on the loop resistance value and the presence of noise on the supply.

The NO TRIP loop test range performs a test with a current of up to 25 A flowing Line to Neutral to measure the resistance of the source and line wires, followed by a current of 15 mA flowing Line to Earth to measure the resistance of the earth wire .

Possible sources of error

The reading depends on a measurement of the supply voltage and therefore noise or transients caused by other equipment during the test could cause an error in the reading. One way to check for these is to do two tests and look for any difference in value. The instrument will detect some sources of noise and warn the user, where other instruments may give an incorrect reading. Any leakage current as a consequence of other appliances connected to the supply under test may affect the reading. If

the Phase-Earth loop is being measured, this leakage may be due to filter capacitors, etc.

Test results may be adversely affected by supply voltage fluctuations or electrical 'noise' during a measurement. It is recommended that tests are repeated and the results verified, if measurement results are considered abnormal.

Errors can be reduced by:-

- The two-wire lead set with prods and make a firm connection to clean conductors.
- Several tests and take the average value.
- Ensure that potential sources of noise in the installation are isolated (switched off), eg: automatically switched loads or motor controllers
- Ensuring that the instrument is calibrated.

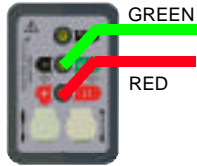
Thermal Protection

To protect the MFT1501 and MFT1502 from overheating during Loop testing, thermal protection is fitted. If the message 'HOT' appears in the display when loop testing, the instrument must be allowed to cool down before further attempts are made at loop testing.

RESIDUAL CURRENT DEVICE [RCD] TESTING

OPTION 1

2 wire lead set



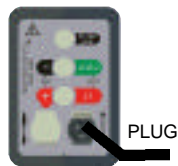
OPTION 2

Switched probe



OPTION 3

Mains plug test lead



The MFT1501 and MFT1502 can perform the following RCD tests:

- 1/2I** Non-tripping test at half the rated RCD trip current for 2 seconds, during which the RCD should not trip.
- I** Tripping test at the rated RCD trip current. The trip time will be displayed.
- 5I** Tripping test at 5 x the rated RCD trip current. The trip time will be displayed in milliseconds.
- DC** Tripping test for DC Sensitive RCDs
- 0 or 180°**

Some RCDs are sensitive to the polarity of the supply, i.e. whether the test current is applied with the instantaneous voltage rising or falling. Trip tests should therefore be performed with both polarities 0° and 180° and the maximum time recorded.

Ramp Test

Used to check the trip current of an RCD.

Note: The Breaker symbol  indicates whether the test function selected is a NON-TRIPPING or TRIPPING test:

CLOSED = NON-TRIPPING test

OPEN = TRIPPING test

1/2 I RCD Testing

Set the LEFT [RCD] rotary range knob to the [**1/2I**] RCD test range.

Set the RIGHT [mA] rotary range knob to current rating of the RCD under test.

Test lead set: OPTION 1, 2 or 3

1. Ensure the right hand Rotary knob is set to the correct range for the RCD under test.
2. Press the YELLOW TEST button.
3. After 2 seconds the message >1999 ms is displayed.

If the RCD trips unexpectedly the message 'trP' will be displayed.

1 x I RCD Testing

Set the LEFT [RCD] rotary range knob to the [**I**] RCD test range.

1. Press the YELLOW TEST button.
2. The RCD trip time is displayed.
3. If the RCD fails to trip, >200 ms is displayed (indicating a failed test).

5 x I RCD Testing

Set the LEFT [RCD] rotary range knob to the [**5I**] test range.

1. Press the YELLOW TEST button.

-
2. The trip time will be displayed.
 3. If the RCD fails to trip, >40 ms is displayed (indicating a failed test).

Note: - The instrument can only test up to 1 A a.c. or 300 mA d.c. Any tests that exceed these limits are disabled.

0 or 180° testing


0° or 180° is selected by pressing the BLUE button on the side of the MFT1501/1502 on either the **1/2I**, **I**, **5I** or **DC** RCD test.

The **I**, **5I** and DC RCD tests should be performed at 0° and 180° and the greater trip time recorded.

RAMP TEST

The RCD trip current is measured by applying a test current of half the rated trip current and increasing this every 200 ms. When the RCD trips, the current flowing is recorded and displayed in mA.

To determine the trip current of an RCD.

1. Select the appropriate RCD rated current on the right hand rotary switch.
2. Select the RAMP  test on the left hand range knob.
3. Press the YELLOW TEST button
4. The trip current is displayed.
5. If the RCD fails to trip, ">***mA" will be displayed, where *** indicates the last test current applied.

DC SENSITIVE RCD TEST [RCD]

D.C. sensitive RCDs are tested with a pulsed waveform. The RMS current is 2 x the rated operating current of the RCD. As with the normal

RCDs, these should be tested with 0° and 180° polarity.

1. Select the appropriate RCD rated current on the right hand rotary switch.
2. Select the [DC] test on the left hand range knob
3. Press the YELLOW TEST button
4. The trip time will be displayed in ms.
6. If the RCD fails to trip, ">200 ms" will be displayed.

Method of measurement


The two wire lead or plug should be used for this measurement. A constant current source is connected across the supply and the time taken for the supply to trip is measured by the instrument in ms.

Possible sources of error

Measurement results can be affected by the following:

- Significant operating errors can occur if loads, particularly rotating machinery and capacitive loads are left connected during tests.
- A poor connection to the circuit under test.

Thermal Protection

The RCD circuit has thermal protection fitted to prevent overheating in the event of multiple ramp tests being performed. The  symbol or the message "Hot" will be displayed. Allow the instrument time to cool down before continuing.

TECHNICAL SPECIFICATIONS

Electrical specification

Voltage range

The voltage will enable the user to ascertain if a system is live prior to testing.

Accuracy $\pm 2\%$ ± 2 digits

Voltage a.c. - 000 V - 500 V 50/60Hz

Voltage d.c. - 000 V - 500 V (Indication of polarity above 10 V)

Insulation ranges (to EN 61557-2)

Accuracy $\pm 2\%$ ± 2 digits up to 99 M

Short circuit current < 2 mA

1 mA at min. pass value of insulation specified in BS7671, HD384 and IEC364

250 V 0.01 - 99.9 M

500 V 0.01 - 299 M

1000 V 0.01 - 499 M

250 V, 500 V and 1 kV into 1 mA load

Output voltage $+20\%$ - 0% at rated load or less.

Auto discharge facility safely discharges connected circuit after test.

Live circuit warning/inhibit when connected to live circuits (Threshold 55 V)

EN 61557 Operating Range 0.10 M to 99.9 M

Loop ranges (to EN 61557-3)

Line/Earth (Single phase)

Supply 55 V - 270 V 45Hz to 65Hz

25 A 0.01 - 9.99 ($\pm 5\%$ ± 0.03)

10.0 - 89.9 ($\pm 5\%$ ± 0.5)

90 - 899 ($\pm 5\%$ ± 5)

900 - 3.00 k ($\pm 5\%$ ± 20)

EN 61557 Operating Range 0.25 to 3.00 k

Line/Line(Three phase)

Supply 55 V - 480 V 45Hz to 65Hz

25 A 0.01 - 19.99 ($\pm 5\%$ ± 0.03) (at 230 V)

EN 61557 Operating Range 0.25 to 19.99

Low current Loop (No Trip)

Supply 55 V - 270 V 45Hz to 65Hz

15mA 0.01 - 2.00 k ($\pm 5\%$ ± 0.03 \pm Noise Margin) (at 230 V)

EN 61557 Operating Range 0.5 to 2.00 k

Prospective Short-circuit Current (PSC)

Prospective Short circuit current = Nominal Voltage / Loop Resistance

Accuracy is therefore derived from the loop test.

1 A - 199 A

1 A resolution

0.02 kA - 1.99 kA

10 A resolution

2.0 kA - 19.9 kA	100 A resolution	Intrinsic Accuracy of ramp test current $\pm 3\%$
Continuity (to EN 61557-4)		Trip time accuracy $\pm 1\% \pm 1$ ms
Ohms 0.01 - 99.9	($\pm 2\% \pm 2$ digits)	Remote Probe MFT1502 only (Optional on MFT1501)
100 - 99.9 k	($\pm 5\% \pm 2$ digits)	Torch feature 5 mm White LED
EN 61557 Operating Range 0.10 to 99.9 k		1500 mcd
Buzzer Operates continuously at less than selected limit .		Safety CLASS 1 LED to IEC 60825:2001
Selectable limits of 2 , 5 , 10 , 20 , 50 , 100		Interchangeable tips
Open circuit voltage 4 - 5 V d.c.		Lengths 30 mm GS38
Test current >200 mA at 2		112 mm GS38
Test Lead resistance zeroing Up to 9.99 (zero uses Test Button)		Battery 9 V PP3
RCD ranges(to EN-61557-6)		Red/Green LED
Supply 100 V - 270 V 45Hz to 65Hz		RED indicates that the instrument is displaying a warning (eg volts on an insulation range)
Ranges 1000 mA, 500 mA, 300 mA, 100 mA, 30 mA, 10 mA		GREEN indicates that the display on the instrument is valid or that the Continuity Buzzer on the instrument is sounding.
Type 1/2I - 1/2 times the selected current		Power Supply
I One times selected current.		Instrument 8 x 1.5 V Alkaline cells type LR6 (AA cells)
5I Five times I current.		Illuminated switched Probe 1 x 9 V Alkaline cell type PP3 (6LR61)
I trip A ramp test that displays actual trip current .		Fuses
DC sensitive A DC test current at I current.		Instrument- Replaceable 500 mA (F) HBC 10 kA 500 V
Current accuracy 1/2I -8% to -2%		Non-replaceable 7 A (SIBA 70-065-63) x 2
I +2% to +8%		Non-replaceable 1 A
5I +2% to +8%		

Probe:- Non-replaceable 7 A (SIBA 70-065-63)

Safety

Double insulated to IEC1010-1:2001, Installation Category III, 300 V phase to earth, 500 V phase to phase.

In addition Probe designed to meet IEC 1010-031:2002, Double insulated to Installation Category III, 300 V phase to earth, 500V phase to phase.

EMC

In accordance with IEC61326 including amendment No. 1

Environmental

Operating range -5 to +40°C

Operating Humidity 90% RH at 40°C max

Storage temperatur e -25 to 65°C

Maximum altitude 2000 m

Dust and water protection: Instrument IP54, Probe no rating.

IEC61557

Complies with the following parts of 61557, Electrical safety in low voltage systems up to 1000 V a.c. and 1500 V d.c.- Equipment for testing, measuring or monitoring of protective measures:-

Part 1 - General requirements

Part 2 - Insulation resistance

Part 3 - Loop resistance

Part 4 - Continuity

Part 5 - Earth test

Part 6 - Residual current devices (RCD)

Part 10 - Combined measuring equipment

ACCESSORIES

Product	Order Code	Optional accessories	Order code
Multifunction Tester Standard	MFT1501	Replacement 3 wire test lead set	6220-770
Multifunction Tester with Illuminated switched probe	MFT1502	Fused prod and clip set	6180-405
		Standard switched probe	6220-606
		Illuminated switched probe	6311-089
		Test lead with Schuko plug	6231-593
		Test lead with UK mains plug	6231-601
		Test lead with USA mains plug	6220-643
		Earth bond test lead set	6231-586
		Instrument/Document carry case	6420-143
		Replacement Probe Tip Set (for SPL1000)	6121-562

Additional accessories with MFT1502

As MFT1501 plus:

Illuminated switched probe

Instrument/document carry case

REPAIR AND WARRANTY

The instrument contains static sensitive devices, and care must be taken in handling the printed circuit board. If an instrument's protection has been impaired it should not be used, but sent for repair by suitably trained and qualified personnel.

The protection is likely to be impaired if for example; it shows visible damage; fails to perform the intended measurements; has been subjected to prolonged storage under unfavourable conditions, or has been subjected to severe transport stresses.

NEW INSTRUMENTS ARE GUARANTEED FOR 1 YEAR FROM THE DATE OF PURCHASE BY THE USER.

NOTE: Any unauthorized prior repair or adjustment will automatically invalidate the Warranty.

INSTRUMENT REPAIR AND SPARE PARTS

For service requirements for Megger Instruments **contact** :

Megger Limited	or	Megger
Archcliffe Road		Valley Forge Corporate Centre
Dover		2621 Van Buren Avenue
Kent CT17 9EN		Norristown PA 19403
England.		U.S.A.

Tel: +44 (0) 1304 502 243 Tel: +1 610 676 8579

Fax: +44 (0) 1304 207 342 Fax: +1 610 676 8625

or an approved repair company.

Approved Repair Companies

A number of independent instrument repair companies have been authorised for repair work on most Megger instruments, using genuine Megger spare parts. Consult the Appointed Distributor/Agent regarding spare parts, repair facilities, and advice on the best course of action to take.

Returning an Instrument for Repair

If returning an instrument to the manufacturer for repair, it should be sent freight pre-paid to the appropriate address. A copy of the invoice and of the packing note should be sent simultaneously by airmail to expedite clearance through Customs. A repair estimate showing freight return and other charges will be submitted to the sender, if required, before work on the instrument commences.



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Megger products are distributed in
146 countries worldwide.

This instrument is manufactured in the United Kingdom.
The company reserves the right to change the specification or design without prior notice.

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