

FLUKE®

Model T50

Voltage/Continuity
Tester


Users Manual


PN 2438510


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Printed in China.


References marked on instrument or in the instruction manual:


 Warning of potential danger, comply with instruction manual.


 Reference. Please use utmost attention.


 Caution! Dangerous voltage. Danger of electrical shock.

 Continuous double or reinforced insulation complies with category II IEC 61140.

 Insulated personnel body protective equipment up to 690V

 Conformity symbol, the instrument complies with the valid directives. It complies with the EMV Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC).

 The instruction manual contains information and references, necessary for safe operation and maintenance of the instrument. Prior to using the instrument, read the instruction manual and comply with it in all sections.

 Failure to read the instruction manual or to comply with the warnings and references contained herein can result in serious bodily injury or instrument damage.

Introduction / Scope of Supply

The FLUKE T50 instruments are voltage and continuity testers for universal applications. The voltage testers are constructed in accordance with the newest safety prescriptions and guarantee safe and reliable measurement and testing. The voltage testers represent a valuable support for all testing and measurement in handicraft and

industrial applications as well as for household uses.

The voltage testers FLUKE T50 characterised by the following features:

- Constructed in compliance with DIN EN 61243-3, DIN VDE 0682 Part 401 (previously DIN VDE 0680 Part 5), IEC61010
- DC and AC voltage measurement up to 690V
- Single-pole phase test
- Continuity test / diode test

After unpacking, verify that the instrument is undamaged. The scope of supply comprises:

1 FLUKE T50

2 Batteries 1.5V IEC LR03 AAA

1 Instruction manual

Safety Measures

The FLUKE T50 instrument has been constructed and verified in compliance with the safety measures for voltage testers DIN EN 61243-3, DIN VDE 0682 Part 401 (previously DIN VDE 0680 Part 5), EN 61010, and IEC 61010 and have left the factory in safe and perfect condition.




In order to avoid electrical shock, the valid safety and VDE regulations regarding excessive contact voltages must receive utmost attention, when working with voltages exceeding 75V (60V) DC or 50V (25V)rms AC. The values in brackets are valid for special ranges (for example medicine and agriculture).





Prior to measurement ensure that the test leads and the test instrument are in perfect condition.


Fluke T50


Safety Measures


 When using this instrument only the handles of the probes may be touched .


 This instrument may only be used within the ranges specified (see Technical Data) and within voltage systems up to 690V.

 Prior to usage, ensure perfect instrument function (e.g. on known voltage source).

 The voltage testers may no longer be used if one or several functions fail or if no functionality is indicated.

 Do not measure under damp conditions.

 Perfect display is only guaranteed within a temperature range of -10°C up to $+55^{\circ}\text{C}$, at relative humidity $<85\%$.

 If operator's safety cannot be guaranteed, the instrument must be removed from service and protected against use.

The safety can no longer be ensured if the instrument:

- shows obvious damage
- does not carry out the desired measurements
- has been stored for too long under unfavourable conditions
- has been subjected to mechanical stress during transport. All relevant statutory safety regulations must be adhered to when using this instrument.

Appropriate Usage

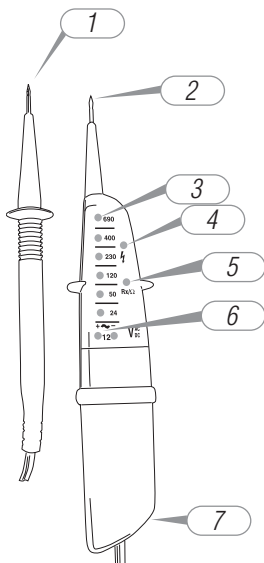
The instrument may only be used under those conditions and for those purposes for which it was built. For this reason, the safety references, the technical data including environmental conditions and the usage in dry environments must be followed.

⚠ When modifying or changing the instrument, the operational safety is no longer ensured.

⚠ The instrument may only be opened by an authorized service technician, e.g. for fuse replacement.


Control Elements

- 1** Handle test probe - (L1)
- 2** Instrument test probe + (L2)
- 3** LEDs for voltage display
- 4** LED for single-pole phase test
- 5** LED for continuity
- 6** Polarity indication
- 7** Battery case




Measurements


Safety Measures

 For any test (measurement) the safety references must be respected. Prior to any use, a functional test has to be carried out.


Function test / Self test:

- Test the voltage tester on a known source.
- Connect test probes. An acoustic sound must be audible and the LED Rx/ Ω (5) must be illuminated.

 The voltage testers may no longer be used if one or several functions fails or if no functional reliability can be detected.


 The voltage display of the FLUKE T50 instruments also functions when using discharged or no batteries.

The FLUKE T50 instrument are equipped with an internal load enabling the tripping of an RCD protection device of 10mA or 30mA.






 For voltage tests (L towards PE) in systems with RCD devices, the RCD may be triggered. To avoid RCD tripping first test between L and N (approx. 5s). Immediately afterwards testing L towards PE can be carried out without RCD tripping.

Voltage Test

 Safety measures have to be met

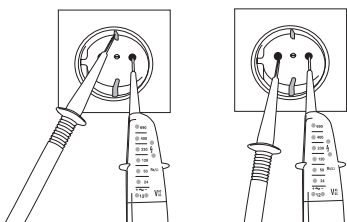
- Connect both test probes with UUT.
-  From a voltage of > 12V the voltage tester switches on automatically.
- The voltage is indicated by LED (3)
- For AC voltages the "+" and "-" LEDs are illuminated and an additional signal sound is audible.
- For DC voltages the LED (6) is illuminated or a sound is audible.
- The instruments are equipped with an LED row comprising: 12V, 24V, 50V, 120V, 230V, 400V, 690V.
- For DC voltage, the polarity of the voltage displayed refers to the instrument test probe (+).

Single-Pole Phase Test

-  The single-pole phase test starts at an AC voltage of approx. 100V (pole > 100V AC).
-  When using single-pole phase tests to determine external conductors, the display function may be impaired under certain conditions (e.g. for insulating body protective equipment on insulation locations).
-  The single-pole phase testing is not appropriate to determine whether a line is live or not. For this purpose, the double-pole voltage test is always required.
-  A signal sound indicates the phase.
-  The LED (4) is illuminated in the display.

Voltage Test with RCD Trip Test

During voltage tests in systems equipped with RCD circuit breakers, a RCD switch can be tripped at a nominal residual current of 10mA or 30mA by measuring the voltage between L and PE.



The RCD trips.

To avoid RCD tripping, a test has to be carried out between L and N during approx. 5 seconds. Immediately afterwards, voltage testing between L and PE can be carried out without RCD tripping.

Continuity Test

⚠ Make sure that UUT is not live. Test voltage polarity at handle test probe is positive (+).

- Check that UUT is not live by carrying out a double-pole voltage test.
- Connect both test probes with UUT. A signal sound is audible for continuity and the LED for continuity Rx/Ω (5) is illuminated.

Maintenance

When using FLUKE T150 testers in compliance with the instruction manual, no particular maintenance is required. If functional errors occur during normal operation, stop using it and contact your nearest authorized service center.

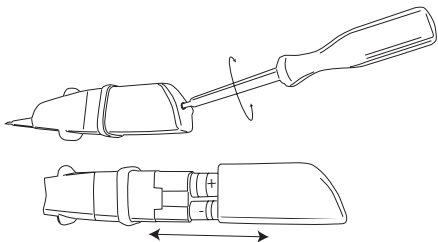
Cleaning

Prior to cleaning, remove voltage tester from all measurement circuits. If the instrument is dirty after daily usage, it is advisable clean it by using a damp cloth and a mild household detergent. Never use acid detergents or dissolvents for cleaning. After cleaning, do not use the voltage tester for a period of approx. 5 hours.

Calibration Interval

The voltage testers must be calibrated periodically and checked by our service department at regular intervals to ensure the specified accuracy of measurement results. We recommend a calibration interval of one year.

Battery Replacement




If no signal sound is audible when shorting the test probe proceed with the battery replacement.

- Completely disconnect FLUKE T50 from the measurement circuit.
- Turn the screw (left) in the case (down, direction of the arrow). Then open and remove it.
- Remove discharge batteries.
- Replace with new batteries, type 1.5V IEC LR03 AAA respecting correct polarity.
- Insert the battery case and close it.

Fluke T50

Technical Data

Please consider your environment when you dispose of your one-way batteries. They belong in a trash dump for hazardous waste. In most cases, the batteries can be returned to their point of sale.

 Please, comply with the respective valid regulation regarding the return, recycling and disposal of used batteries and accumulators.

Technical Data

LED voltage range	12...690V AC/DC
LED resolution	±12, 24, 50, 120, 230, 400, 690V
Tolerance	complying to DIN VDE 0682, Part 401
Voltage detection	automatic
Acoustic signal	(AC voltage) yes
Polarity detection	full range
Range detection	automatic
Response time	<0.1s LED
Frequency range	DC, 0...65 Hz
Automatic load (RCD)	yes
Internal basic load	approx. 2.1 W at 690V
Test current	< 3,5 mA
Peak current	I _s = 0.2 A
Operation time	ED (DT) = 30s
Recovery time	240 s
Auto Power On	> 12 V AC/DC
Single-pole Phase Test	
Voltage range	100...690 V AC
Frequency range	50...65 Hz
Continuity Test	
Resistance range	0...200 kΩ
Accuracy	RN +50%
Test current	3 μA
Overvoltage protection	690V AC/DC
Power supply	2 x 1.5 V Micro IEC LR03
Power consumption	max. 30mA / approx. 250mW
Temperature range	-10°C...55°C
Humidity	max. 85% relative humidity
Height above sea level	up to T _m
Overvoltage class	CAT III / 600 V
Degree of contamination	2
Type of protection	IP54
Safety complying to	DIN EN 61243-3, DIN VDE 0682 Part 401 (first DIN VDE 0680 Part 5, EN 61010, IEC 61010)
Weight	130g (incl. batteries)
Dimensions (HxWxD)	210 x 40 x 22 mm

Fluke T50 LIMITED WARRANTY

LIMITED WARRANTY & LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send your defective tester to that Service Center with a description of the problem.

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY.

Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

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