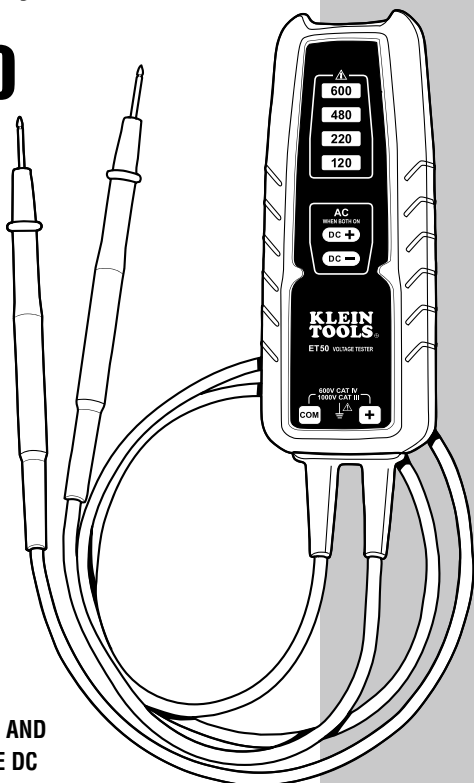


# Instruction Manual

## ET50

ENGLISH



- AC/DC VOLTAGE TO 600V
- POSITIVE AND NEGATIVE DC POLARITY
- LIGHT AND VIBRATION INDICATORS
- CAT IV 600V SAFETY RATING
- MODERN SOLID-STATE DESIGN



# KLEIN TOOLS®

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# ET50

## Instruction Manual

### GENERAL SPECIFICATIONS

The Klein Tools ET50 is a solid-state electrical tester. It measures AC/DC voltage to 600V.









- **Voltage Level Indicators:** 120, 220, 480, 600
- **Voltage Type Indicators:** DC Positive, DC Negative, AC
- **AC Frequency:** 45Hz to 66Hz
- **Maximum Voltage To Earth Ground:** 600V RMS
- **Maximum Measurable Voltage:** 600V RMS (displayed by LEDs)
- **Input Impedance:** 15k $\Omega$  on connection, up to 150k $\Omega$  steady-state.
- **Usage Duty Cycle (Above 220V):** 1 minute on, 5 minutes off
- **Accuracy:** 70% to 100% of indicated voltage
- **Battery Type:** 3 x AAA
- **Operating Altitude:** 2000m
- **Relative Humidity:** 0°C to 30°C (32°F to 86°F) 90%  
30°C to 40°C (86°F to 104°F) 75%  
40°C to 55°C (104°F to 131°F) 45%
- **Operating Temperature:** 0°C to 55°C (32°F to 131°F)
- **Storage Temperature:** 0°C to 55°C (32°F to 131°F)
- **Dimensions:** 7.375 x 2.375 x 1.25"
- **Weight:** 8.5oz.
- **Safety:** CSA C22.2-1010.1, IEC 61010-1, Pollution Degree II
- **CAT rating:** CAT IV 600V, CAT III 1000V


### WARNINGS

To ensure safe operation and service of the tester, follow these instructions. Failure to observe these warnings can result in severe injury or death.

- Before each use, verify meter operation by measuring a known voltage or current.
- Never use the meter on a circuit with voltages that exceed the category based rating of this meter.
- Do not use the meter during electrical storms, or in wet weather.
- Do not use the meter or test leads if they appear to be damaged.
- Ensure meter leads are fully seated, and keep fingers away from the metal probe contacts when making measurements.
- Do not open the meter to replace batteries while the probes are connected to a voltage source.
- Use caution when working with voltages above 60V DC, or 25V AC RMS. Such voltages pose a shock hazard.
- Always adhere to local and national safety codes. Use individual protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

## SYMBOLS

 Positive DC Voltage	 Warning or Caution
 Negative DC Voltage	 Dangerous levels
 AC Voltage	 Double Insulated Class II
 Earth Ground	 ETL Certification

 This product has been tested to the requirements of CAN/CSA-C22.2 No. 61010-1, second edition, including Amendment 1, or a later version of the same standard incorporating the same level of testing requirements

### CAT III

Designed for transient protection on indoor measurements at installations connected directly to the primary source. Examples include distribution panels and lighting systems in large buildings.

### CAT IV

Designed for transient protection on outdoor measurements taken at the primary supply voltage source. Examples include outdoor overhead or underground utility service and electricity meter.

## FEATURE DETAILS

### Indicators

#### Lights

- LEDs light up numerical voltage level indicators, as well as DC +, DC -, or both (AC) indicators.
- Voltage detection will function without batteries installed.

#### Vibration

- Instrument will vibrate in the presence of voltage measurements that activate the 120V LED.
- Vibration will function only with batteries installed.

### Accuracy

Accuracy of indicator lights is 70% to 100% of the voltage displayed to account for normal variations in supply voltage.

Voltage-type indicator LEDs (DC, AC) illuminate at around 12V.

### Ghost Voltages

The approximate input resistance of 15k $\Omega$  will reduce the possibility of false readings due to ghost voltages on de-energized lines.

### Lead Spacing

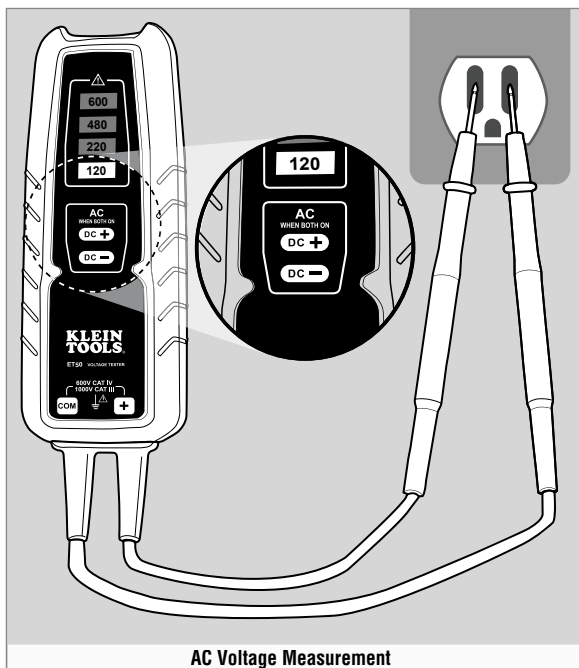
Molded lead holders on the back of the ET50 are spaced correctly to test tamper-resistant outlets.

## OPERATING INSTRUCTIONS

### Measuring Voltages

⚠ Time spent operational at voltages above 220V must be less than 60 seconds, with a cool-off time of at least 5 minutes.

Tester will turn on automatically when voltage is applied.



**GFCI Testing**

- ⚠ Check the GFCI Receptacle user manual for more information.
- ⚠ Always contact a qualified electrician to resolve wiring problems.
- ⚠ Operate the Push Button on the GFCI Receptacle. If the GFCI circuit does not trip, the receptacle is not operating properly.

To test the functionality of a Ground Fault Circuit Interrupter receptacle, apply leads to the hot and ground terminals for 7 seconds.

- If the GFCI receptacle is wired properly, power to the circuit will go out and the ET50 will stop indicating voltage.
- If the GFCI receptacle is wired improperly, power to the circuit will remain and the ET50 will continue to indicate voltage. To resolve an issue, contact a qualified electrician.

**Battery Replacement**

Batteries are not required for visual voltage indication.

1. Remove test leads from voltage source.
2. Unscrew battery cover and replace 3xAAA batteries.

## WARRANTY

This product is warranted to be free from defects in materials and workmanship for a period of two years from the date of purchase. During this warranty period, Klein Tools has the option to repair or replace or refund the purchase price of any unit which fails to conform to this warranty under normal use and service. This warranty does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect, or improper maintenance. Batteries and damage resulting from failed batteries are not covered by warranty. A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. Klein Tools shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss.

Some states or countries laws vary, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. If your Klein product requires repair or for information on how to exercise your rights under the terms of this warranty, please contact Klein Tools at 1-800-553-4676.

## CLEANING

Clean the instrument by using a damp cloth. Do not use abrasive cleaners or solvents.

## STORAGE

Remove the batteries when instrument is not in use for a prolonged period of time. Do not expose to high temperatures or humidity. After a period of storage in extreme conditions exceeding the limits mentioned in the Specifications section, allow the instrument to return to normal operating conditions before using it.

## DISPOSAL / RECYCLE



**Caution:** This symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal.

## CUSTOMER SERVICE

**KLEIN TOOLS, INC.**

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