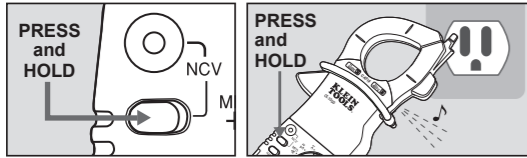


8. Non Contact Voltage (NCV): > 25V AC



SYMBOLS USED ON LCD

~	AC Measurement	---	DC Measurement
-	Negative DC Value	AT	Auto Range Active
O.L.	Overload: Range Exceeded	Apo	Auto Power-Off Active
+ -	Low Battery	HOLD	Hold Active
MIN	Minimum Reading	MAX	Maximum Reading
%	Duty Cycle Mode	Hz	Frequency Mode
V	Voltage Measurement	A	Current in Amps
Ω	Resistance in Ohms	⤴	Diode Test
F	Capacitance in Farads		Continuity Test
n	Nano 10 ⁻⁹	μ	Micro 10 ⁻⁶
m	Milli 10 ⁻³	k	Kilo 10 ³
M	Mega 10 ⁶		

ELECTRICAL SPECIFICATIONS

DC Voltage Measurement

Range	Resolution	Accuracy
400mV ~ 400V	0.1mV ~ 0.1V	± (0.5% + 4 digits)
1000V	1V	± (0.8% + 10 digits)

Overload Protection: 1000V

AC Voltage Measurement

Range	Resolution	Accuracy
400mV ~ 750V	0.1mV ~ 1V	± (2.0% + 5 digits)

Overload Protection: 750V RMS

Frequency Response: 40 to 400 Hz

Minimum Voltage for Frequency Measurement: 200mV

Response: Averaging

DC Current Measurement

Range	Resolution	Accuracy
400μA	0.1μA	± (1.2% + 3 digits)
2000μA	1μA	

Overload Protection:

- Voltage: 600V RMS
- Current: 2000μA

AC Current Measurement

Range	Resolution	Accuracy
400μA	0.1μA	± (2.0% + 5 digits)
2000μA	1μA	± (1.5% + 5 digits)
40A	0.01A	± (2.9% + 15 digits)
400A	0.1A	± (1.9% + 8 digits)

Overload Protection:

- Voltage: 600V RMS
- Current: 2000μA

Frequency: 45 to 400Hz

Minimum Current for Frequency Measurement: 400μA or 20A

Response: Averaging

Resistance Measurement

Range	Resolution	Accuracy
400Ω ~ 4MΩ	0.1Ω ~ 0.001MΩ	± (1.0% + 4 digits)
40MΩ	0.01MΩ	± (2.0% + 4 digits)

Overload Protection: 600V RMS

Capacitance Measurement

Range	Resolution	Accuracy
40nF ~ 4000μF	0.01nF ~ 1μF	± (3.5% + 6 digits)

Overload Protection: 600V RMS

Frequency Measurement

Range	Resolution	Accuracy
9.999Hz ~ 999.9kHz	0.001Hz ~ 0.1kHz	± (0.1% + 4 digits)

Overload Protection: 600V RMS

Duty Cycle Measurement

Range	Resolution	Accuracy
0.1 ~ 99.9%	0.1%	± (0.2% per kHz + 0.1% + 5 digits)

Overload Protection: 600V RMS

Diode Test

Overload Protection	Range	Test Current	Open Circuit Voltage
600V RMS	2.0V	Appx. 0.25mA	< 1.6V DC

Continuity Test

Overload Protection	Open Circuit Voltage
600V RMS	< 0.44V

Non Contact Voltage Detector

On Voltage
Appx. 25V AC

WARRANTY

www.kleintools.com/warranty

CLEANING

Turn instrument off and disconnect test leads. 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



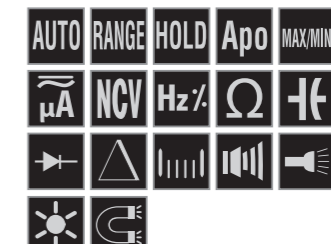
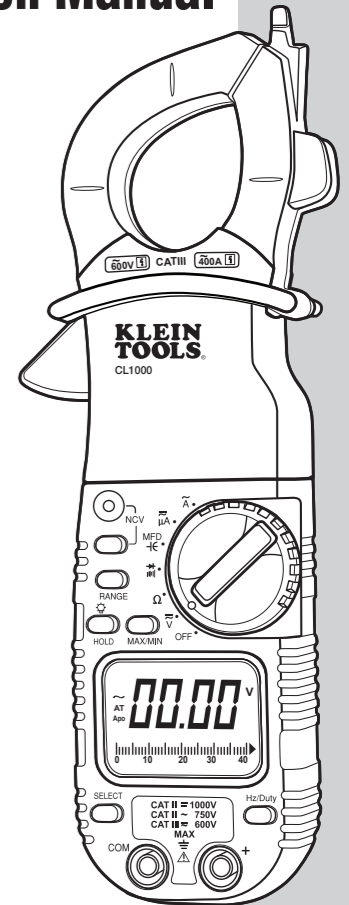
Caution: This symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal.

Instruction Manual

ENGLISH

- AUTO / MANUAL RANGE
- NON CONTACT VOLTAGE TESTER
- DATA HOLD
- MAX / MIN
- BAR GRAPH
- 3-3/4 DIGIT 3999 COUNT LCD
- BACKLIGHT
- WORKLIGHT

750V ~
1000V ---
400A ~



CUSTOMER SERVICE

KLEIN TOOLS, INC.
450 Bond Street
Lincolnshire, IL 60069
www.kleintools.com

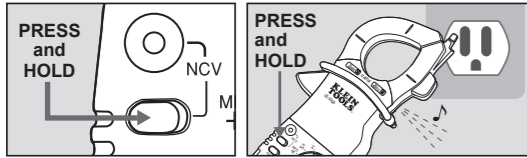


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8. Non Contact Voltage (NCV): > 25V AC



SYMBOLS USED ON LCD

~	AC Measurement	---	DC Measurement
-	Negative DC Value	AT	Auto Range Active
O.L.	Overload: Range Exceeded	Apo	Auto Power-Off Active
+/-	Low Battery	HOLD	Hold Active
MIN	Minimum Reading	MAX	Maximum Reading
%	Duty Cycle Mode	Hz	Frequency Mode
V	Voltage Measurement	A	Current in Amps
Ω	Resistance in Ohms	▶	Diode Test
F	Capacitance in Farads		Continuity Test
n	Nano 10 ⁻⁹	μ	Micro 10 ⁻⁶
m	Milli 10 ⁻³	k	Kilo 10 ³
M	Mega 10 ⁶		

ELECTRICAL SPECIFICATIONS

DC Voltage Measurement

Range	Resolution	Accuracy
400mV ~ 400V	0.1mV ~ 0.1V	± (0.5% + 4 digits)
1000V	1V	± (0.8% + 10 digits)

Overload Protection: 1000V

AC Voltage Measurement

Range	Resolution	Accuracy
400mV ~ 750V	0.1mV ~ 1V	± (2.0% + 5 digits)

Overload Protection: 750V RMS

Frequency Response: 40 to 400 Hz

Minimum Voltage for Frequency Measurement: 200mV

Response: Averaging

DC Current Measurement

Range	Resolution	Accuracy
400μA	0.1μA	± (1.2% + 3 digits)
2000μA	1μA	

Overload Protection:

- Voltage: 600V RMS
- Current: 2000μA

AC Current Measurement

Range	Resolution	Accuracy
400μA	0.1μA	± (2.0% + 5 digits)
2000μA	1μA	± (1.5% + 5 digits)
40A	0.01A	± (2.9% + 15 digits)
400A	0.1A	± (1.9% + 8 digits)

Overload Protection:

- Voltage: 600V RMS
- Current: 2000μA

Frequency: 45 to 400Hz

Minimum Current for Frequency Measurement: 400μA or 20A

Response: Averaging

Resistance Measurement

Range	Resolution	Accuracy
400Ω ~ 4MΩ	0.1Ω ~ 0.001MΩ	± (1.0% + 4 digits)
40MΩ	0.01MΩ	± (2.0% + 4 digits)

Overload Protection: 600V RMS

Capacitance Measurement

Range	Resolution	Accuracy
40nF ~ 4000μF	0.01nF ~ 1μF	± (3.5% + 6 digits)

Overload Protection: 600V RMS

Frequency Measurement

Range	Resolution	Accuracy
9.999Hz ~ 999.9kHz	0.001Hz ~ 0.1kHz	± (0.1% + 4 digits)

Overload Protection: 600V RMS

Duty Cycle Measurement

Range	Resolution	Accuracy
0.1 ~ 99.9%	0.1%	± (0.2% per kHz + 0.1% + 5 digits)

Overload Protection: 600V RMS

Diode Test

Overload Protection	Range	Test Current	Open Circuit Voltage
600V RMS	2.0V	Appx. 0.25mA	< 1.6V DC

Continuity Test

Overload Protection	Open Circuit Voltage
600V RMS	< 0.44V

Non Contact Voltage Detector

On Voltage
Appx. 25V AC

WARRANTY

www.kleintools.com/warranty

CLEANING

Turn instrument off and disconnect test leads. 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



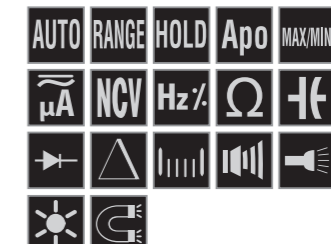
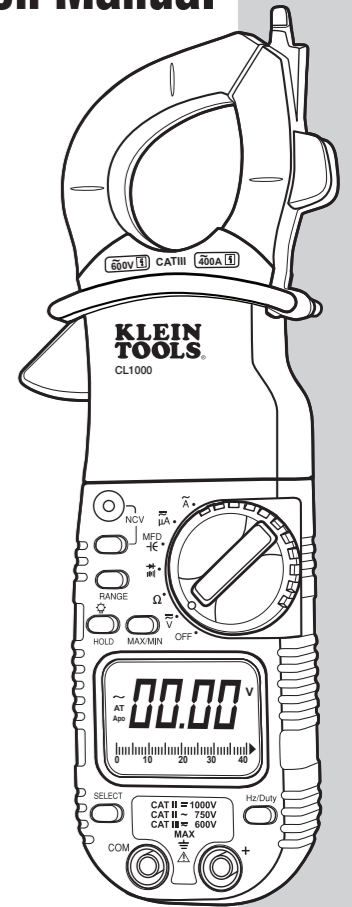
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Instruction Manual

ENGLISH

- AUTO / MANUAL RANGE
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- BACKLIGHT
- WORKLIGHT

750V ~
1000V ---
400A ~



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3194551

CL1000 Instruction Manual

GENERAL SPECIFICATIONS

The Klein Tools CL1000 is an auto-ranging clamp meter. It measures AC/DC voltage, AC/DC current, resistance, capacitance, frequency, and duty cycle. It can also test non-contact voltage, diodes, and continuity.

- **Operating Altitude:** 2000 meters
- **Humidity:** 80% max
- **Operating Temperature:** 0°C/32°F to 45°C/113°F
- **Storage Temperature:** 0°C/32°F to 60°C/140°F
- **Accuracy Temperature:** 18°C/64°F to 28°C/82°F
- **Temperature Coefficient:** 0.1% (specified accuracy) / °C
- **Dimensions:** 8.875" x 3.375" x 1.5" (225 mm x 86 mm x 38 mm)
- **Weight:** 11 oz. (303 g)
- **Calibration:** Accurate for one year
- **Safety Rating:** CAT III 600V
- **Accuracy:** ± (% of reading + # of least significant digits)

⚠ WARNINGS

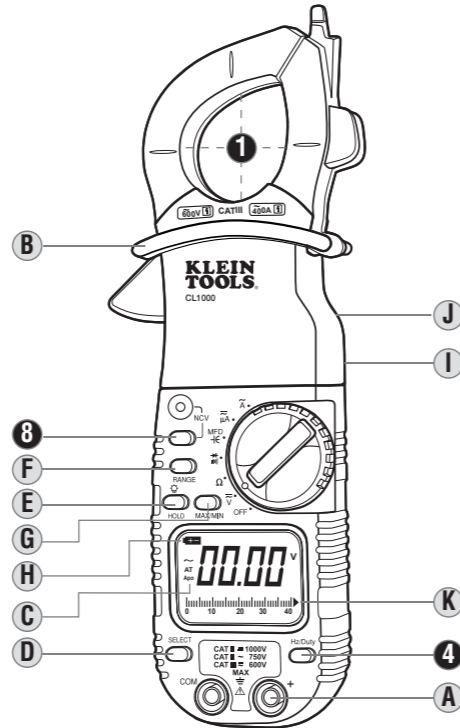
To ensure safe operation and service of the tester, follow these instructions. Failure to observe these warnings can result in severe injury or death.

- 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.
- Use caution when working with voltages above 60V DC, or 25V AC RMS. Such voltages pose a shock hazard.
- To avoid false readings that can lead to electrical shock, replace batteries if a low battery indicator appears.
- Unless measuring voltage or current, shut off and lock out power before measuring resistance or capacitance.
- 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

- | | |
|--------------------------|------------------------------------------|
| AC Alternating Current | Warning or Caution |
| DC Direct Current | Dangerous levels |
| DC/AC Voltage or Current | Double Insulated Class II |
| Ground | Safe for disconnect from live conductors |
| AC Source | |

FEATURE DETAILS



- A. Use CAT III rated leads or higher. Do not attempt to measure more than 1000V DC or 750V AC or 2000µA.**
- B. Keep hands below line when measuring high current levels.**
- C. Auto Power-Off (Apo)**
 - Device will power off after 30 minutes non-use.
 - Turn the dial or press a button to wake.
 - Disabled during Max / Min function.
 - Holding Select button while turning on disables Auto Power-Off.
- D. Select Functionality Button**
 - Switch between AC and DC.
 - Switch between and .
- E. Hold / Backlight / Worklight**
 - Press to hold the current input on the display.
 - Press again to return to live reading.
 - Press for 2 seconds to enable / disable lights.
 - Using lights drains the battery significantly.
- F. Auto / Manual Range**
 - Press repeatedly to cycle through manual ranges.
 - Press for 2 seconds to return to auto ranging mode.
 - **AT** is displayed on LCD only during auto ranging mode.
- G. Max / Min Hold**
 - Press to enter Max / Min mode; the largest and smallest values will be saved while in this mode.
 - Press repeatedly to alternate between the maximum and minimum readings.
 - Press for 2 seconds to return to live reading and clear the stored maximum and minimum values.
- H. I. Battery Replacement**
 - When indicator is displayed on the LCD, batteries must be replaced.
 - Remove the back screw and replace 2 x AAA batteries.

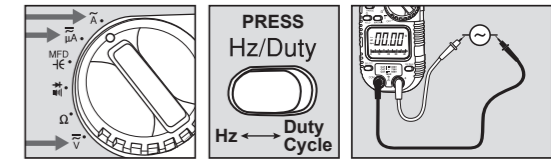
- J. Magnetic Back**
 - Attach instrument to metal for hands-free use.
- K. Bar Graph**
 - The bar graph shows an approximate analog representation of a measurement.
 - The bar graph responds much faster than the digital display.
 - The scale of the bar graph is zero to the maximum reading of the selected range.

FUNCTION INSTRUCTIONS

- 1. AC Current (large): < 400A**
Features: **HOLD** **RANGE** **MAX/MIN**
 - Center wire in guides for best accuracy.
 - Opposing currents cancel. Use line-splitter (USA only) when necessary.
- 2. AC / DC Current (small): < 2000µA**
Features: **HOLD** **RANGE** **MAX/MIN**
 - Select AC or DC current source.
 - Current above 2000µA will damage instrument.
- 3. AC / DC Voltage: < 750V AC or 1000V DC**
Features: **HOLD** **RANGE** **MAX/MIN**
 - Select AC or DC voltage source.

- 4. Frequency (Hz) / Duty Cycle** (See Feature Details)

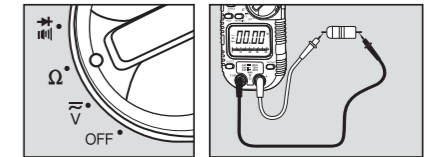
Features: **HOLD**



- Select \bar{V} , $\bar{\mu A}$, or \bar{A} setting.
- Frequencies greater than 1MHz will display "0.000Hz".

- 5. Resistance: < 40MΩ**

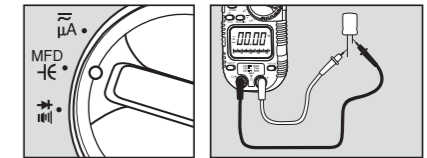
Features: **HOLD** **RANGE** **MAX/MIN**



- Do not measure resistance on a live circuit.

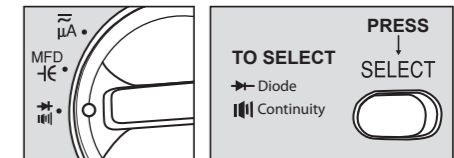
- 6. Capacitance: < 4000µF**

Features: **HOLD**



- Safely discharge capacitor before measurement.
- Reading may take up to 60 seconds for large capacitors.

- 7. Diode / Continuity**



Diode Features:

HOLD **MAX/MIN**

Display shows:

- Forward voltage drop if forward biased.
- "O.L." if reverse biased.

Continuity Features:

HOLD **MAX/MIN**

- Display shows resistance.
- Buzzer sounds if less than 30Ω.

CL1000 Instruction Manual

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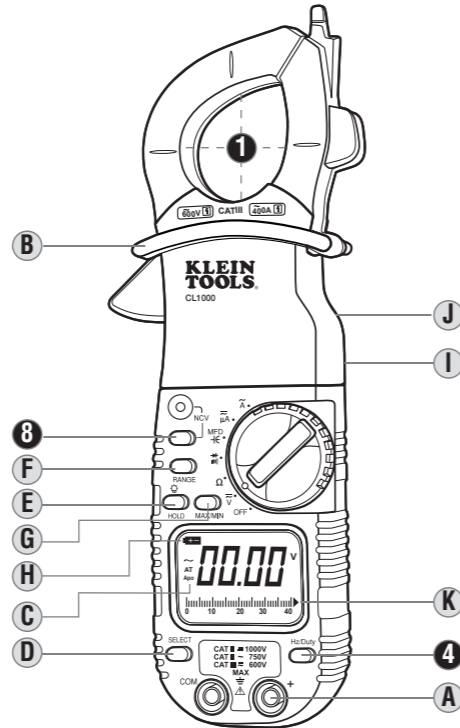
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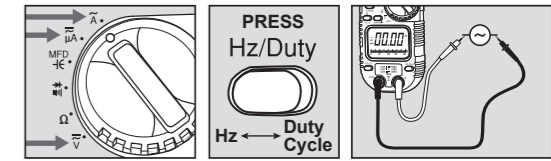
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 - Opposing currents cancel. Use line-splitter (USA only) when necessary.
- 2. AC / DC Current (small): < 2000µA**
Features: **HOLD** **RANGE** **MAX/MIN**
 - Select AC or DC current source.
 - Current above 2000µA will damage instrument.
- 3. AC / DC Voltage: < 750V AC or 1000V DC**
Features: **HOLD** **RANGE** **MAX/MIN**
 - Select AC or DC voltage source.

- 4. Frequency (Hz) / Duty Cycle** (See Feature Details)

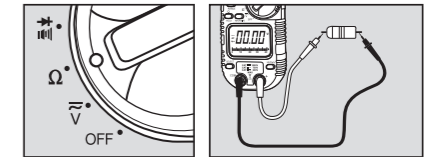
Features: **HOLD**



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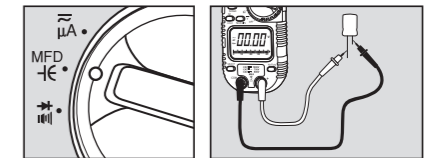
Features: **HOLD** **RANGE** **MAX/MIN**



- Do not measure resistance on a live circuit.

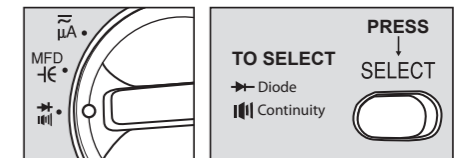
- 6. Capacitance: < 4000µF**

Features: **HOLD**



- Safely discharge capacitor before measurement.
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HOLD **MAX/MIN**

Display shows:

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Continuity Features:

HOLD **MAX/MIN**

- Display shows resistance.
- Buzzer sounds if less than 30Ω.