

True RMS Digital Clamp-On Multimeter

INSTRUCTION MANUAL
ENGLISH



WARRANTY


The KANE49B is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase. If within the warranty period your instrument should become inoperative from such defects, the unit will be repaired or replaced at Kane's option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Batteries and consequential damage resulting from failed batteries are not covered by warranty.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. KANE 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.

A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered. Instruments out of warranty will be repaired (when repairable) for a service charge.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

BATTERY REPLACEMENT

- When  is displayed on the LCD, batteries must be replaced.
- Remove the back screw and replace 2 x AAA batteries.

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.



KANE49B Instruction Manual

GENERAL SPECIFICATIONS







- Altitude: Operating - up to 2000m
Storage - 10,000m
- Humidity: 80% max
- Operating Temperature: 32°F to 122°F (0°C to 50°C) at < 75% R.H
- Storage Temperature: -4°F to 140°F (-20°C to 60°C) at < 80% R.H
- Relative humidity: 0% to 80% at 32°F to 95°F (0°C to 35°C),
0% to 70% at 32°F to 131°F (0°C to 55°C)
- Temperature Coefficient: Nominal 0.1 x (Specified accuracy) / °C (<18°C or >28°C ; <64°F or >82°F)
- Pollution degree: 2
- Display: 3-3/4 digits 4000 counts single LCD display(s) with 20 segments bargraph
- Refresh Rate: 3 times/sec
- Overrange: "OL" is displayed
- Polarity: Automatic(no indication for positive polarity) ; Minus(-) sign for negative polarity
- Dimensions: 8.625" x 3.25" x 1.5"
- Weight: 11.9oz.
- Calibration: Accurate for one year
- CAT Rating: CAT III 600V, CAT II 1000V
- Certifications: UL & cUL Listed IEC61010-2-032
- Battery type: 2 x 1.5V AAA or LR03
- IEC61010-2-031 Silicon Test Lead
- 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 Personal Protective Equipment (PPE) to prevent shock and arc blast injury.





















FUNCTIONS

- AC/DC Voltage 
- AC/DC Current 
- Resistance 
- Frequency & Duty cycle 
- Diode test 
- Continuity 










FEATURES

- True RMS
- Data hold mode  HOLD
- MIN/MAX (All ranges except Frequency & Capacitance) . . . Min/Max
- DC A Zero mode  Rel/Zero
- Test lead storage
- Aut-ranging measurements with manual ranging capability
- 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.
- Auto-Power-Off: After 30 minutes of non-use
- Low battery:  is displayed if battery voltage drops below operating voltage.







SYMBOLS USED ON LCD

- | | | | |
|---|-----------------------------|---|---------------------------|
|  | AC Measurement |  | DC Measurement |
|  | Negative DC Value |  | Auto Range Active |
|  | Overload: Range Exceeded |  | Auto Power-Off Active |
|  | Low Battery |  | Hold Active |
|  | Minimum Reading |  | Maximum Reading |
|  | Duty Cycle Mode |  | Frequency Mode |
|  | Voltage Measurement |  | Current in Amps |
|  | Resistance in Ohms |  | Diode Test |
|  | Relative / Zero Mode |  | Kilo (x 10 ³) |
|  | Milli (x 10 ⁻³) |  | Mega (x 10 ⁶) |

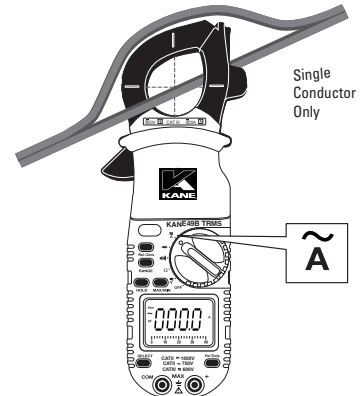
INTERNATIONAL SYMBOLS

- | | | | |
|---|--------------------------|---|--|
|  | 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 LEGEND

	<ul style="list-style-type: none"> Press to hold the reading on the display. Press again to return to live reading.
	<ul style="list-style-type: none"> 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. Note: Select range prior to selecting Min/Max to capture large values
	<ul style="list-style-type: none"> 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. Note: Select range prior to Min/Max for best results.
	<ul style="list-style-type: none"> Press to enable/disable mode and set reference value. Display will show the difference between the set reference
	<ul style="list-style-type: none"> Select $\tilde{\nu}$ or \bar{A} setting.
	<ul style="list-style-type: none"> Select between AC and DC voltage. Select between AC and DC current.

AC Current (large): < 400A



- Center wire in guides for best accuracy.
- Opposing currents cancel (use line-splitter when necessary).

Features:



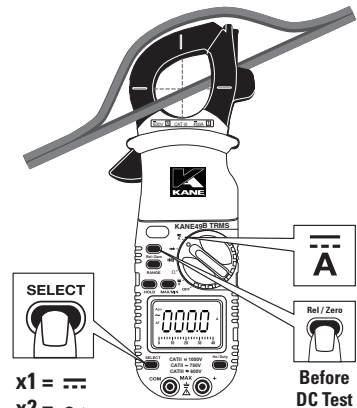
AC Current Measurement

Range	Resolution	Accuracy	Overload Protection
40A	0.01A	± (2.9% + 15 digits)	600V RMS
400A	0.1A	± (1.9% + 8 digits)	

True RMS: 45Hz to 400Hz

* Minimum Current for Clamp Measurement: 0.2A

DC Current (large): < 400A



- Center wire in guides for best accuracy.
- Opposing currents cancel (use line-splitter when necessary).

Features:

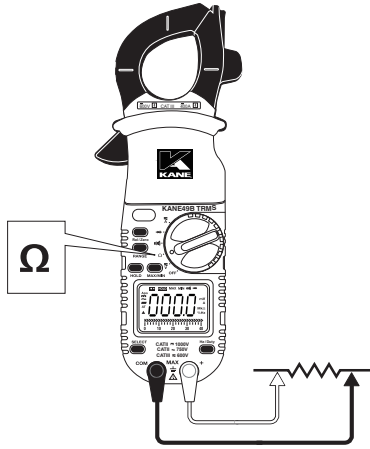


DC Current Measurement

Range	Resolution	Accuracy	Overload Protection
40A	0.01A	± (2.5% + 15 digits)	600V RMS
400A	0.1A	± (1.5% + 8 digits)	

* Minimum Current for Clamp Measurement: 0.2A

Resistance: < 40MΩ

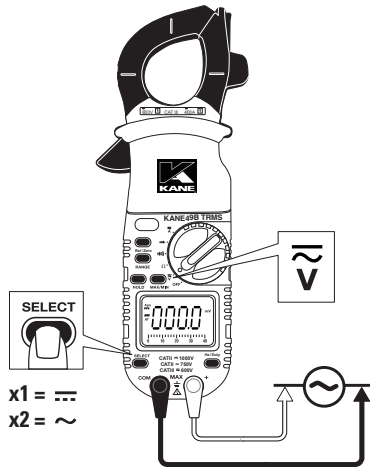


• ⚠ Do not measure resistance on a live circuit.



Range	Resolution	Accuracy	Overload Protection
400Ω	0.1Ω	± (1.0% + 4 digits)	600V RMS
4kΩ	1Ω		
40kΩ	10Ω		
400kΩ	100Ω		
4MΩ	1kΩ	± (2.0% + 4 digits)	
40MΩ	10kΩ		

AC / DC Voltage: < 750V AC or 1000V DC



⚠ Use CAT III rated leads or higher. Do not attempt to measure more than 1000V DC or 750V AC.
 ⚠ Keep hands below line when measuring high current levels.
 • Select AC or DC voltage source.



DC Voltage Measurement

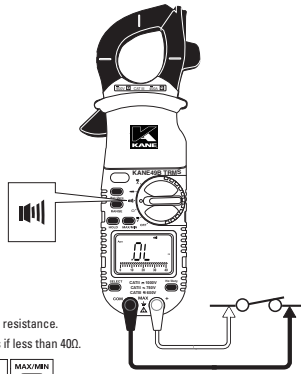
Range	Resolution	Accuracy	Overload Protection
400mV	0.1mV	± (0.5% + 4 digits)	1000V
4V	1mV		
40V	10mV		
400V	100mV		
1000V	1V	± (0.8% + 10 digits)	

AC Voltage Measurement

Range	Resolution	Accuracy	Overload Protection
400mV	0.1mV	± (2.0% + 5 digits)	750V RMS
4V	1mV		
40V	10mV		
400V	100mV		
750V	1V		

True RMS: 45Hz to 400Hz

Continuity



• Display shows resistance.
 • Buzzer sounds if less than 40Ω.

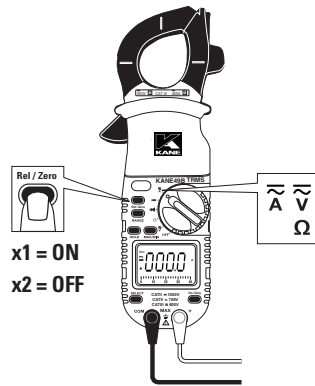


Continuity Test

Overload Protection	Open Circuit Voltage
600V RMS	< 0.44V

Threshold Approx : < 40Ω

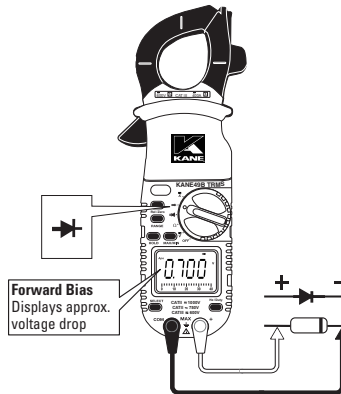
Relative Reading / DC A Zero



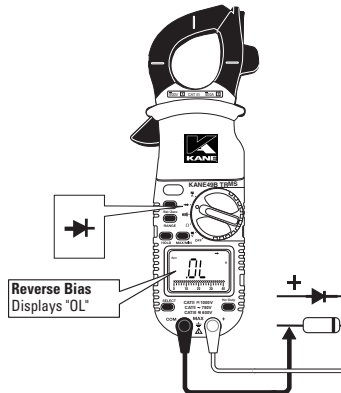
Rel / Zero
 x1 = ON
 x2 = OFF

Diode

GOOD DIODE

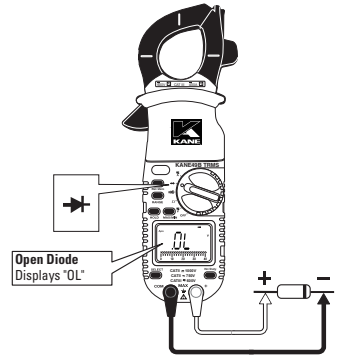


Forward Bias
 Displays approx. voltage drop

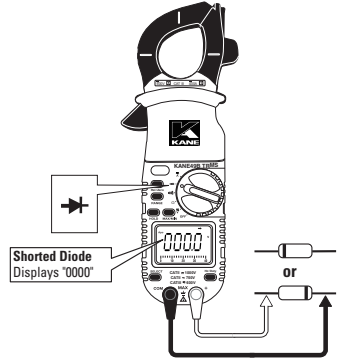


Reverse Bias
 Displays "OL"

BAD DIODE



Open Diode
 Displays "OL"



Shorted Diode
 Displays "0000"

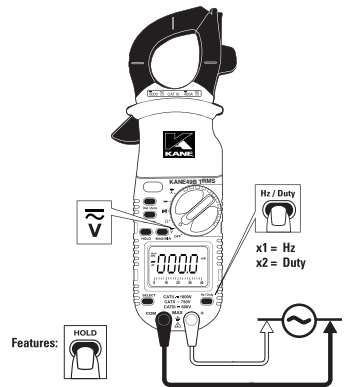
• Forward voltage drop if forward biased.
 • "O.L." if reverse biased.



Diode Test

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

Frequency (Hz) / Duty Cycle



Frequency Measurement

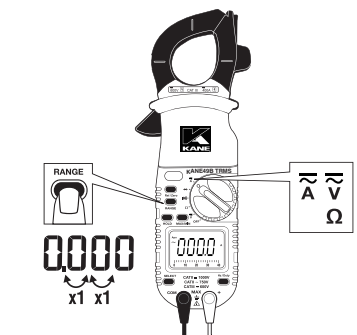
Range	Resolution	Accuracy	Overload Protection
99.99Hz	0.01Hz	± (0.1% + 4 digits)	600V RMS
999.9Hz	0.1Hz		
9.999kHz	1Hz		
99.99kHz	10Hz		

Sensitivity: 1.8V RMS

Duty Cycle Measurement

Range	Accuracy	Overload Protection
1.0 - 99.0%	±(0.2% per kHz + 0.1% + 5 digits)	600V RMS

Auto / Manual Range



x1 x1