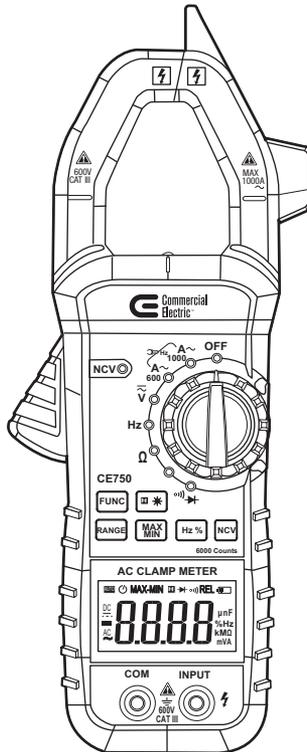


USE AND CARE GUIDE

DIGITAL CLAMP METER



Questions, problems, missing parts? Before returning to the store,
call Commercial Electric Customer Service
8 a.m. - 6 p.m., EST, Monday - Friday

1-877-527-0313

HOMEDEPOT.COM

THANK YOU

We appreciate the trust and confidence you have placed in Commercial Electric through the purchase of this digital clamp meter. We strive to continually create quality products designed to enhance your home. Visit us online to see our full line of products available for your home improvement needs. Thank you for choosing Commercial Electric!

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Safety Information

Please read this manual carefully and pay attention to related safe working standards before using this meter. Protection provided by the instrument will be impaired if used in a manner not specified by the manufacturer.

SAFETY SYMBOLS

Symbol	Definition
	Indicates important safety information, refer to the operating manual.
	Dangerous voltage may be present.
	Double Insulation, Protection Class II.
	This product conforms to UL/CAS 61010-1 IEC 61010-2-032 Certified to CSA STD. C22.2 No. 61010-1 and 61010-2-032 with measurement category (CAT IV 600V and CAT III 1000V) and pollution degree 2.
	This meter complies with EU standard.
	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	Measurement category IV, pollution degree 2.
	Earth (ground).

Safety Information (continued)

PRECAUTIONS



WARNING: This manual contains information and warnings necessary for safe operation and maintenance of the meter. It is recommended that you read and understand this instruction manual thoroughly prior to using the meter. Failure to understand these instructions and to comply with the warnings and instructions contained herein can result in serious injury or damage.



WARNING: Check the meter for damage before first use. Ensure that the test leads are in good condition. Ensure that the insulation is not damaged and there are no exposed wires.



WARNING: Full compliance with safety standards can be guaranteed only with test leads supplied.



WARNING: Before measuring hazardous voltages, first check the voltage indicated to determine if the equipment can operate correctly.



WARNING: Do not use the meter or test leads if they look damaged. The test lead level is 1000V, 10A.



WARNING: Do not measure by exceeding the indication value stated in each measuring range.



WARNING: When testing currents, resistors, capacitors, diodes, and circuit connections, do not connect the meter to the voltage source.



WARNING: Use caution when working with voltages above 60V DC or 30V AC RMS. Always keep your fingers behind the protection device.



WARNING: Do not measure voltages greater than 600 V.



WARNING: When measuring a circuit with the meter connected, do not contact the probe tip.



WARNING: Do not use the meter in explosive gas, vapor, or dusty environments.



WARNING: Do not use the meter when the battery cover and bottom case are loose. Ensure the battery cover and bottom case are completely fastened onto the meter.



WARNING: Do not store or use the meter in conditions of direct sunlight, high temperature, and high humidity.



WARNING: Never perform resistance, capacitor, diode, or continuity measurements on live circuits.



WARNING: Do not measure capacitance before the capacitor is discharged completely.



CAUTION: To avoid damage to the meter, do not exceed the maximum limits of the input values shown in the technical specification tables.



CAUTION: Before changing functions, disconnect the test leads from the circuit under test.



CAUTION: Keep your fingers behind the protection ring while measuring.

Warranty

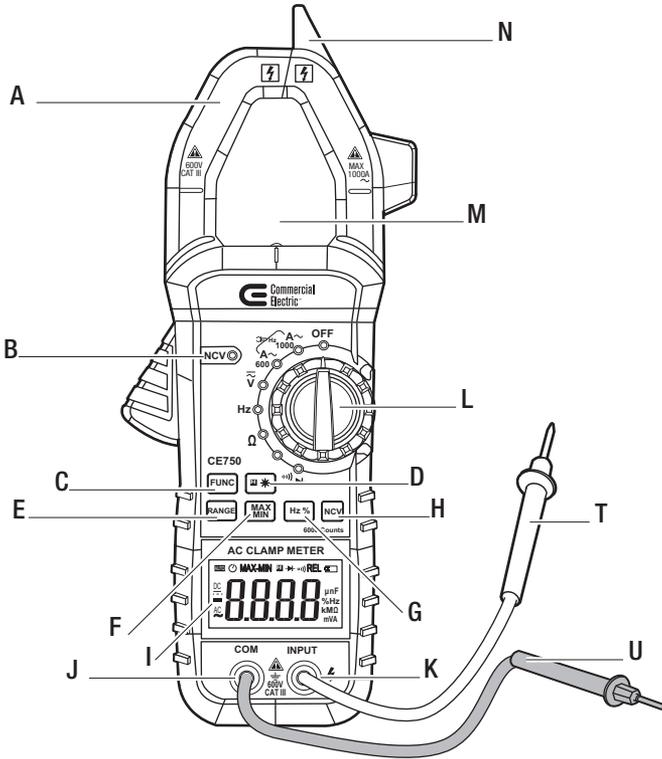
WARRANTY: 12 MONTHS

For one year from the date of purchase, this product is warranted against any defects in material or workmanship. This warranty is void if this product is ever used while providing commercial services or if rented to another person.

Contact the Customer Service Team at 1-877-527-0313 or visit www.HOMEDEPOT.COM.

Pre-Operation

PACKAGE CONTENTS

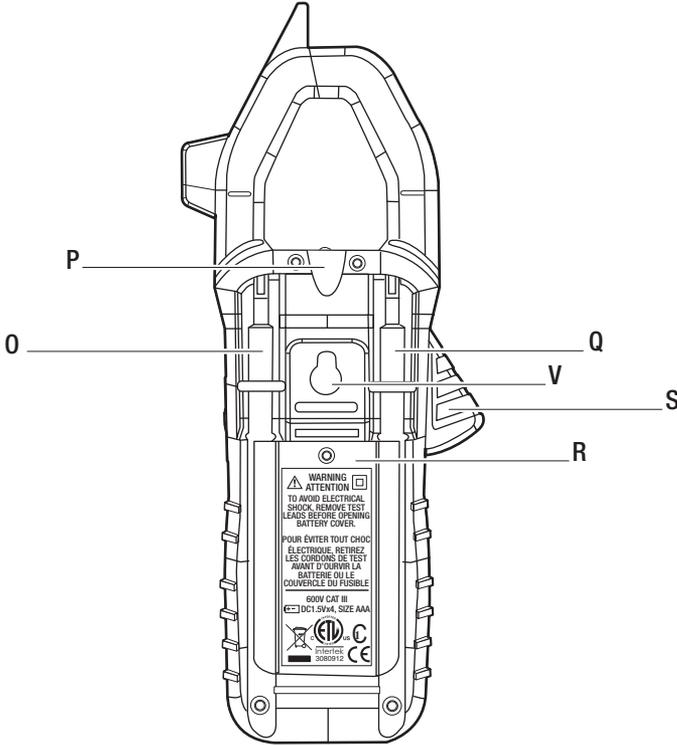


Part	Description	Quantity
A	Current clamp head	1
B	Non-contact voltage detection sensing light	1
C	FUNC button	1
D	Hold/Light button	1
E	RANGE button	1
F	MAX/MIN button	1
G	Hz/% button	1
H	NCV button	1

Part	Description	Quantity
I	LCD screen	1
J	COM jack	1
K	Input jack	1
L	Measurement dial	1
M	Clamp head center	1
N	Non-contact voltage detection sensing position	1
T	Red test probe	1
U	Black test probe	1

Pre-Operation (continued)

PACKAGE CONTENTS



Part	Description	Quantity
O	Test probe storage	1
P	Clamp head light	1
Q	Test probe storage	1
R	Battery cover	1
S	Trigger	1
V	Hanging Hook	1

Pre-Operation (continued)

BUTTON DEFINITIONS

Meter Button	Definition
 / 	<p>Press this button during a measurement to hold the reading. Press this button again to release the hold on the measurement reading.</p> <p>This button also controls the backlight on the LCD display. When the battery voltage is less than 2.4V, the LCD will display the low battery indicator. However, if you are using the backlight, this automatically reduces the voltage in the battery and it could be the cause for the low battery indicator. In these instances, reading accuracy is not guaranteed. If this occurs, take your measurement without the backlight on. Only change the battery when the low battery symbol displays without backlight use.</p>
RANGE	<p>Press this button to switch between an automatic and manual measuring range. The default is automatic. Press this button to switch to manual measuring range. In the manual measuring range mode, click once to jump to a higher range. When at the top range, press this button again to jump to lower ranges. Hold this button for 2 seconds to switch back to automatic measuring range.</p> <p>Note that in the capacitance and frequency measurement state, the manual measuring range button is invalid.</p>
Hz/%	<p>Press this button in AC voltage mode to measure Hz, AC voltage, and AC current frequency. Press this button a second time to measure DUTY cycle and voltage and current signal duty ratio. Press this button a third time to return to the voltage/current measurement mode.</p> <p>Note that when the meter is in the MAX/MIN mode, it cannot switch to frequency and duty ratio measurement mode.</p>
MAX/MIN	<p>Press this button to enter MAX mode and keep the measurement maximum value. Press this button a second time to enter the minimum value measurement mode. Press this button a third time to display the difference of the maximum and minimum values.</p> <p>Press and hold this button for 2 seconds to return to normal measuring mode.</p> <p>Note that when the meter is in the maximum/minimum state, it is in manual measuring range mode. HOLD, RUNC, and REL are not valid. When the meter is in the frequency, duty ration measurement state, it cannot switch to maximum/minimum measurement mode.</p>
FUNC	<p>Press this button to switch between diode and continuity detection.</p> <p>When measuring voltages, press this button to switch between AC and DC.</p>
NCV	<p>Press this button to control the non-contact voltage detection.</p>

AUTOMATIC POWER OFF FUNCTION

If the meter is idle for 15 minutes after turning it on, the meter automatically powers off to save the battery. Within 1 minute before this shutdown, the buzzer sounds 5 times. To turn the meter back on during this time, press the FUNC button.

To cancel the automatic power-off function, hold the FUNC button when powering on.

Pre-Operation (continued)

LCD DISPLAY DEFINITIONS

LCD Item	Definition
AC, DC	Alternating current, Direct current
	Diode, buzzing continuity
AUTO	Automatic measuring range
MAX	Maximum measurement state
MIN	Minimum measurement state
REL	Relative measurement rate
	Automatic power off state
	Low battery
HOLD	Reading hold state
%	Percentage (duty ratio)
mV, V	Millivolt, Volt (voltage)
A	Amperes (current)
nF, μ F	Nano farad, Microfarad
Ω , k Ω , M Ω	Ohm, Kilohm, Megohm (resistance)
Hz, kHz, MHz	Hertz, Kilohertz, Megahertz (frequency)



PRODUCT SPECIFICATIONS

LCD Item	Definition
Maximum voltage between terminals and earth (ground)	600V DC or 600V AC
Altitude	Up to 2000 meters
Battery	3 x 1.5V AAA batteries
Accuracy	Accuracy is specified for a period of one year after calibration and at 18°C to 28°C (64°F to 82°F) with relative humidity up to 75%.
Display	LCD, displayed maximum value: 6000 digits
Polarity indication	"-" displayed for negative polarity
Measuring range	Auto measuring range Full measuring range overload protection
Exceeding measuring range display	OL or -OL
Sampling rate	Approximately 3 times per second
Auto time off	15 minutes
Operating environment	18°C to 28°C (64°F to 82°F), 75% relative humidity
Temperature coefficient	Less than 0.1 × accuracy/°C
Storage temperature	-10°C - 50°C
Size	243.5 x 99 x 48 mm
Weight	Approximately 340 g (includes battery)

AC CURRENT SPECIFICATIONS

Measuring Range	Resolution	Accuracy
600A	0.1A	±(2.0% reading + 5 digits)
1000A	1A	

Additional Specifications:

- Maximum Input Current: 1000A AC
- Maximum Input Current: -40~400Hz

Pre-Operation (continued)

DC VOLTAGE SPECIFICATIONS

Measuring Range	Resolution	Accuracy
600mV	0.1mV	±(0.7% reading +3 digits)
6V	0.001V	
60V	0.01V	
600V	0.1V	
1000V	1V	±(0.8% reading +2 digits)

Additional Specifications:

- Input Impedance: 10MΩ
- Maximum Input Voltage: 600V AC (RMS) or 600V DC



NOTE: In the small voltage measuring range, the probe is not connected with the circuit to be tested, and the meter may have fluctuating readings, which is normal and caused by the meter's high sensitivity. When the meter is connected with the circuit to be tested, you will get actual measured value.

AC VOLTAGE SPECIFICATIONS

Measuring Range	Resolution	Accuracy
6V	0.001V	±(0.8% reading +3 digits)
60V	0.01V	
600V	0.1V	
750V	1V	±(1.0% reading +4 digits)

Additional Specifications:

- Input Impedance: 10MΩ
- Maximum Input Voltage: 600V AC (RMS) or 600V DC
- Frequency Range: 40 – 400Hz



NOTE: In the small voltage measuring range, the probe is not connected with the circuit to be tested, and the meter may have fluctuating readings, which is normal and caused by the meter's high sensitivity. When the meter is connected with the circuit to be tested, you will get actual measured value.

FREQUENCY SPECIFICATIONS

Clamp Head Measuring Frequency (through mode A):

Measuring Range	Resolution	Accuracy
99.99Hz	0.01Hz	±(1.5% reading +5 digits)
999.9Hz	0.1Hz	
>1kHz	0.001kHz	For reference only

Additional Specifications:

- Measuring Scope: 10Hz~1kHz
- Input Signal Range: : ≥60A AC (RMS) (input current will increase when the frequency to be measured increases)
- Maximum Input Current: 1000A (RMS)

Clamp Head Measuring Frequency (through mode V):

Measuring Range	Resolution	Accuracy
99.99Hz	0.01Hz	±(1.5% reading +5 digits)
999.9Hz	0.1Hz	
9.999kHz	0.001kHz	
>10kHz	0.01kHz	For reference only

Pre-Operation (continued)

Additional Specifications:

- Measuring Scope: 10Hz~10kHz
- Input Signal Range: $\geq 0.2V$ AC (RMS) (input voltage will increase when the frequency to be measured increases)
- Input Impedance: $10M\Omega$
- Maximum Input Voltage: 600V AC (RMS)

Clamp Head Measuring Frequency (through mode Hz/Duty):

Measuring Range	Resolution	Accuracy
9.999Hz	0.001Hz	$\pm(0.3\%$ reading +5 digits)
99.99Hz	0.01Hz	
999.9Hz	0.1Hz	
9.999kHz	0.001kHz	
99.99kHz	0.01kHz	
999.9kHz	0.1kHz	
9.999kHz	0.001MHz	

DUTY RATIO SPECIFICATIONS

Measuring Range	Resolution	Accuracy
0.1-99.9%	0.1%	$\pm 0.3\%$

Clamp Head Measuring Frequency Through Mode A:

- Frequency Response: 10 - 1kHz
- Input Current Range: $\geq 60A$ AC (RMS) (input current will increase when the frequency to be measured increases)
- Maximum Input Current: 1000A

Clamp Head Measuring Frequency Through Mode V:

- Frequency Response: 10 - 10kHz
- Input Voltage Range: ≥ 0.6 AC (RMS) (input current will increase when the frequency to be measured increases)
- Input Impedance: $10M\Omega$
- Maximum Input Voltage: 600V AC (RMS)

Clamp Head Measuring Frequency Through Mode Hz/Duty:

- Frequency response: 10 – 10MHz
- Input Voltage Range: $\geq 0.2V$ AC (RMS) (input voltage will increase when the frequency to be measured increases)
- Input Impedance: $10M\Omega$
- Maximum Input Voltage: 250V AC (RMS)

RESISTANCE SPECIFICATIONS

Measuring Range	Resolution	Accuracy
600 Ω	0.1 Ω	$\pm(0.8\%$ reading +5 digits)
6k Ω	0.001k Ω	
60k Ω	0.01k Ω	
600k Ω	0.1k Ω	
6M Ω	0.001M Ω	$\pm(1.2\%$ reading +3 digits)
60M Ω	0.1M Ω	

Additional Specifications:

- Open Circuit Voltage: 0.4V
- Overload Protection: 250V DC or AC (RMS)

Pre-Operation (continued)

CIRCUIT CONTINUITY TEST

Measuring Range	Resolution	Accuracy
	0.1Ω	If the resistance of the circuit to be measured is less than 50Ω, the meter's built-in buzzer may sound.

Additional Specifications:

- Overload Protection: 250V DC or AC (RMS)

CAPACITANCE SPECIFICATIONS

Measuring Range	Resolution	Accuracy
40nF	0.01nF	± (4.0% reading +5 digits)
400nF	0.1nF	
4μF	0.001μF	
40μF	0.01μF	
400μF	0.1 μF	
4000mF	1μF	

Additional Specifications:

- Overload Protection: 250V DC or AC (RMS)

DIODE TEST

Measuring Range	Resolution	Function
	0.001V	Displays the approximate diode forward voltage value.

Additional Specifications:

- Forward DC current is about 1mA
- Backward DC voltage is about 3.3V
- Overload Protection: 250V DC or AC (RMS)

Operation

BEFORE YOU TAKE A MEASUREMENT



CAUTION: If the current under measurement is higher than the selected value for a long period, overheating may take place, compromising the safety and operation of the inner circuits.



CAUTION: When connecting the lines, first connect the common (COM) test line, then connect the charged test line. When removing the lines, remove the charged test line first.



CAUTION: For manual measuring ranges, if the value being measured is not known in advance, choose the highest measuring range first, then gradually select a lower range until the correct range is displayed.

Operation (continued)

1 Completing a Current Measurement



WARNING: Electric shock hazard. Remove the test probes from the meter before measuring with the current clamp.

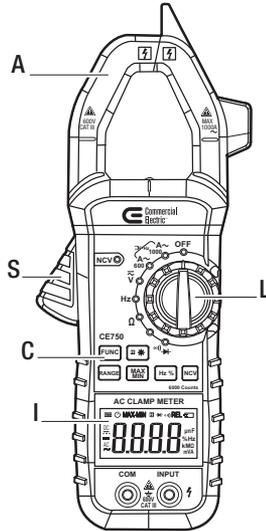


NOTE: The maximum AC current is 1000A.



NOTE: You will not get the correct measuring results if you clamp two or more leads of a circuit to be tested simultaneously.

- Press the FUNC button (C) to choose AC measuring mode.
- Set the measurement dial (L) to the A position and choose the appropriate measuring range.
- Hold the trigger (S), open the clamp head (A), and clip one lead of the measurement circuit to be tested in the clamp (A). Connect the lead at the center of the clamp to ensure an accurate reading.
- Read the displayed value on the LCD display (I).



2 Completing a Voltage Measurement

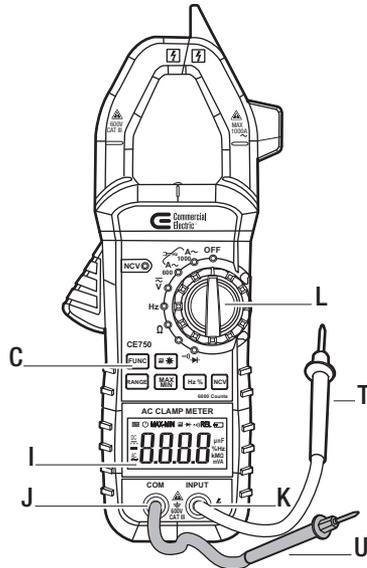


WARNING: Do not attempt to take any voltage measurement that exceeds 600V AC RMS or 1000V DC in order to avoid electrical shock and/or damage to the meter. The maximum input voltage at mode mV is 600mV DC or AC. If readings are above these measurements, the meter will send out a 'beep' alarm.



NOTE: In smaller voltage measuring ranges, the probes are not connected with the circuit to be tested and the meter may have fluctuating readings. This is normal and caused by the meter's high sensitivity. When the meter is connected with the circuit to be tested, you will get an actual measured value.

- Insert the black test probe (U) to the COM jack (J) and the red test probe (T) to the INPUT jack (K).
- Place the measurement dial (L) to the DC voltage position. If you want to measure AC voltage, press the FUNC button (C) to enter AC voltage mode.
- Connect the test probes (T and U) with the voltage source or both ends of the load in parallel for measurement and read the voltage on the LCD display (I).



Operation (continued)

3 Completing Frequency and Duty Ratio Measurements for AC Current



WARNING: Electric shock hazard. Remove the test probes from the meter before measuring with the current clamp.



WARNING: The maximum input current is 1000A AC (RMS).



NOTE: Clamping two or more leads of a circuit to be tested simultaneously will not get the correct measuring results.

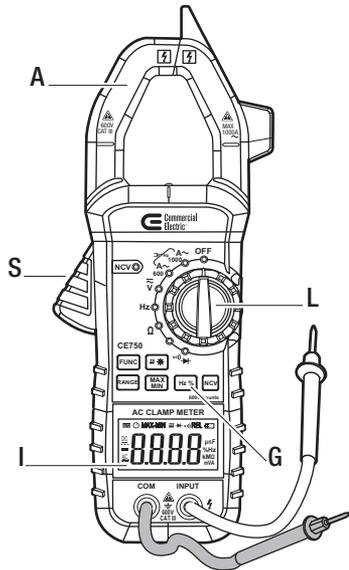


NOTE: The frequency measurement range is 10Hz – 1kHz. When the frequency being tested is less than 10Hz or if the frequency is higher than 10kHz then accuracy is not guaranteed.



NOTE: The duty measurement range is 10 to 95%. If the duty ration being tested is less than 10%, the LCD display will show "UL". When measuring frequencies higher than 94.9%, the LCD display will show "OL".

- Place the measurement dial (L) to the correct position.
- Hold the trigger (S), open the clamp head (A), and clip one lead of the measurement circuit to be tested in the clamp.
- Press the Hz/% button (G) to switch to frequency measuring mode and read the current value on the LCD display (I). Press the Hz/% button (G) again to enter duty ratio measuring mode.



4 Completing Frequency and Duty Ratio Measurements in Voltage Measurement Mode



WARNING: Electric shock hazard. Do not measure input voltages more than 600V AC RMS for frequency measurements and 750V AC RMS for duty ratio measurements.

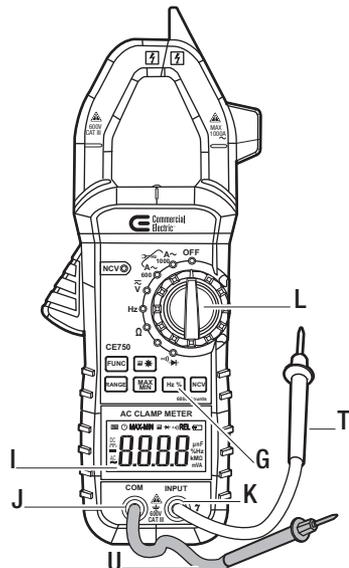


NOTE: The frequency measurement range is 10Hz – 1kHz. When the frequency being tested is less than 10Hz, the LCD will display "00.0". Measuring a frequency higher than 10kHz is possible but accuracy is not guaranteed.



NOTE: The duty measurement range is 10 to 95%. If the duty ration being tested is less than 10%, the LCD display will show "UL". When measuring frequencies higher than 94.9%, the LCD display will show "OL".

- Insert the black test probe (U) to the COM jack (J) and the red test probe (T) to the INPUT jack (K).
- Place the measurement dial (L) to the V position.
- Press the Hz/% button (G) to switch to frequency or duty ratio measuring mode.
- Connect the test probes (T and U) with the signal or both ends of the load in parallel for measurement.
- Read the reading on the LCD display (I).



Operation (continued)

5 Completing Frequency and Duty Ratio Measurements in Hz/Duty Measurement Mode



WARNING: Electric shock hazard. Do not measure input voltages more than 250V AC RMS.

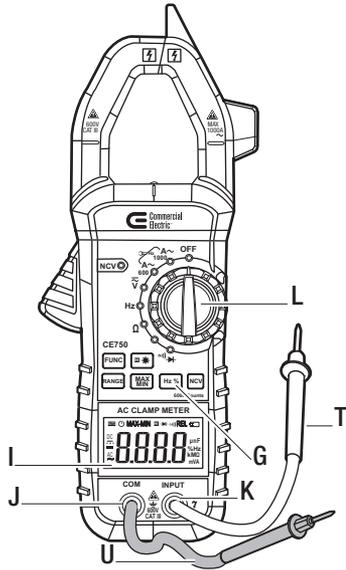


NOTE: The duty measurement range is 10 to 99%. If the duty ration being tested is less than 10%, the LCD display will show "UL". When measuring frequencies higher than 99%, the LCD display will show "OL".



NOTE: The frequency range of input signal for duty ratio is 10 – 10MHz.

- Insert the black test probe (U) to the COM jack (J) and the red test probe (T) to the INPUT jack (K).
- Place the measurement dial (L) to the Hz position.
- Press the Hz button (G) to switch between frequency and duty ratio measurement mode.
- Connect the test probes (T and U) with the signal or both ends of the load in parallel for the measurement.
- Read the measurement on the LDC display (I).



6 Completing a Resistance Test

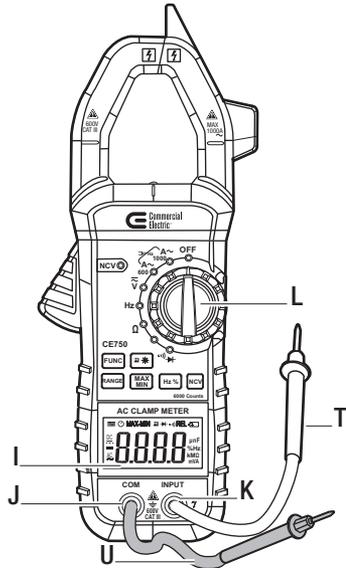


NOTE: When the input end is open, the LCD shows "OL" outrange state.



NOTE: When the resistance to be tested is greater than 1M, the meter reading will stabilize after a few seconds, which is normal for high resistance readings.

- Insert the black test probe (U) to the COM jack (J) and the red test probe (T) to the INPUT jack (K).
- Place the measurement dial (L) to the resistance position. At this time, the meter is in the measurement state.
- Connect the test probes (T and U) to both ends of the resistor or circuit to be tested for measurement and read the reading on the LDC display (I).



Operation (continued)

7 Completing a Diode Test

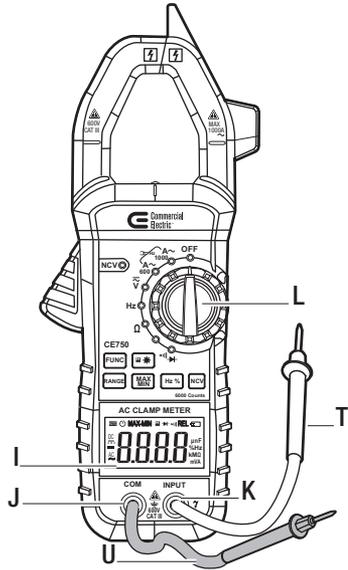


NOTE: The display on the meter shows the approximation of a diode forward voltage drop.



NOTE: If the probe has a reverse connection or the probe is open, the LCD will show "OL".

- Insert the black test probe (U) to the COM jack (J) and the red test probe (T) to the INPUT jack (K).
- Place the measurement dial (L) to the diode position.
- Connect the red test probe (T) to the diode anode and connect the black test probe (U) to the diode cathode to make the test.
- Read the result on the LCD display (I).



8 Completing a Circuit Continuity Test

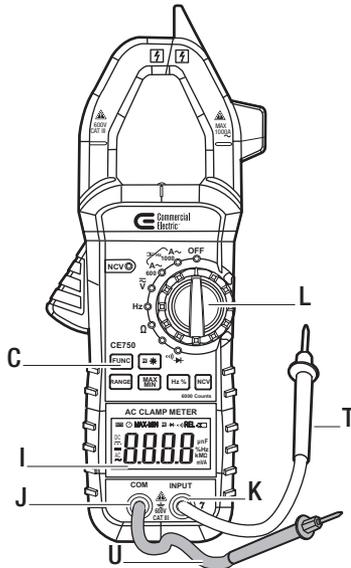


WARNING: Electric shock hazard. When measuring circuit continuity, ensure that the power supply is disconnected and the capacitor in the circuit is completely discharged.



NOTE: If the probe is open or the circuit resistance to be tested is more than 600 Ω , the display will show "OL".

- Insert the black test probe (U) to the COM jack (J) and the red test probe (T) to the INPUT jack (K).
- Place the measurement dial (L) to the diode position.
- Press the FUNC button (C) to switch to continuity mode.
- Connect the probes (T and U) to both ends of the circuit to be tested for measurement. If the resistance of the circuit to be measured is less than 50 Ω , the meter's built-in buzzer may sound.
- Read the resistance value on the LCD display (I).



Operation (continued)

9 Completing a Capacitance Measurement

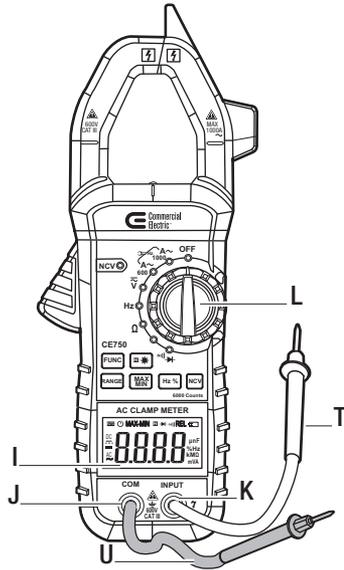


WARNING: Electric shock hazard. To avoid electric shock, before measuring capacitance, discharge the capacitance completely.



NOTE: When measuring bulk capacitor, readings will stabilize in about 30 sec. (400 μ F and 4000 μ F).

- Insert the black test probe (U) to the COM jack (J) and the red test probe (T) to the INPUT jack (K).
- Place the measurement dial (L) to the capacitance position.
- Connect the probes (T and U) to both ends of the capacitor to be tested for measurement.
- Read the capacitance value on the LDC display (I).



10 Completing an NCV Measurement



NOTE: Even if there is no indication, voltage may still exist. Do not use non-contact voltage detection to judge whether there is voltage in the wire. Detection operation could be affected by socket design, insulation thickness, type, and other factors.

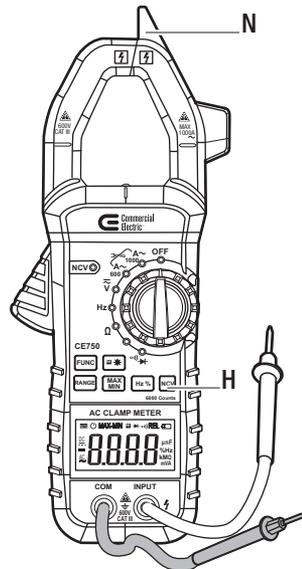


NOTE: When inputting voltage on the meter input terminal, due to the existence of the induced voltage, the voltage induction indicator also may light..



NOTE: External sources of interference (such as flashlight, motor, etc.) may incorrectly trigger non-contact voltage detection.

- Press the NCV button (H).
- Place the non-contact sensor (N) close to the conductor. When the test voltage is greater than 90V AC (RMS), the meter induction voltage indicator will flash and the buzzer will give an alternating high-low sound.



Maintenance



WARNING: Before you open the meter, always disconnect it from all sources of electric current and make sure you are not charged with static electricity, which may destroy the internal components.



WARNING: When you open the meter, remember that some internal capacitors can retain a dangerous voltage level even after the instrument is switched off.



WARNING: Any adjustment, maintenance, or repair work carried out on the meter while it is live should be carried out by a qualified electrician.



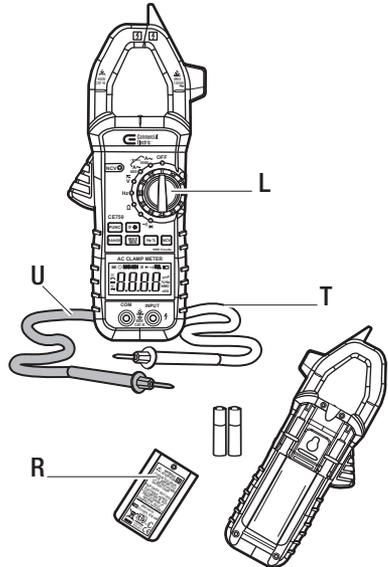
CAUTION: If the meter is not going to be used for a long time, take out the battery and do not store the meter in a high temperature or high humidity environment.

1 Battery Replacement



IMPORTANT: Change the battery when the battery symbol appears on the LCD in order to avoid incorrect data.

- Turn the meter off by placing the measurement dial (L) in the Off position.
- Disconnect the black and red test leads (T and U) and/or any connectors from the terminals on the meter.
- Use a screwdriver to unscrew and remove the battery cover (R) located on the back of the meter.
- Remove the used batteries and replace with new batteries.
- Reattach the battery cover (R) and secure with the screws.



Care and Cleaning

- Do not use abrasives or solvents to clean the meter. Use a damp cloth and mild detergent only.



Questions, problems, missing parts? Before returning to the store,
call Commercial Electric Customer Service
8 a.m.- 6 p.m., EST, Monday-Friday

1-877-527-0313

HOMEDEPOT.COM

Retain this manual for future use.