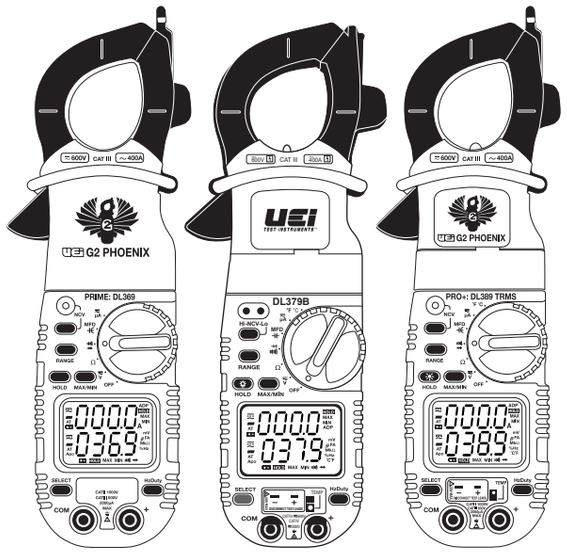
DL369/DL379B/DL389

TEST INSTRUMENTS

INSTRUCTION MANUAL

ENGLISH



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www.ueitest.com • email: info@ueitest.com

FEATURES

- **3 ¾ digit, 4000 count LCD display**
- **Auto-ranging with manual ranging capability**
- **MIN/MAX (Peak Hold). All ranges except capacitance & frequency.**
- **Frequency, duty cycle, data hold**
- **Auto power off**
- **Dual display**
- **Built-in test lead storage**
- **Backlit display + Worklight (DL379B & DL389)**
- **Detachable current clamp head (DL379B & DL389)**
- **Temperature (DL379B & DL389)**
- **Magnetic mount (DL379B & DL389)**
- **True RMS measurement (DL389 only)**

SAFETY NOTES

⚠ Warning

Refer to user guide regarding potential hazard and proper instructions. Before using this meter, read all safety information carefully. In this manual the word "WARNING" is used to indicate conditions or actions that may pose physical hazards to the user. The word "CAUTION" is used to indicate conditions or actions that may damage this instrument.

⚠ Warning

- 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 this meter during electrical storms or in wet weather.
- Do not use the meter or test leads if they appear damaged.
- Keep your fingers away from the test lead's metal probe contacts when making measurements.
- Ensure meter leads are fully seated and keep fingers away from metal probe contact when making measurements. Always grip the leads behind the finger guards molded into the probe.
- Do not open the meter to replace batteries white the probes are connected.
- Use caution when working with voltages above 60V DC or 25V AC RMS. Such voltages pose shock hazards.
- 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 national and local safety codes. Use proper personal safety equipment (PPE) to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Always turn off power to a circuit or assembly under test before cutting, unsoldering or breaking the current path. Even small amounts or current can be dangerous.
- Always disconnect the live test leads before disconnecting the common test lead from the circuit.
- In the event of electrical shock, ALWAYS bring the victim to the emergency room for evaluation, regardless of victim's apparent recovery. Electrical shock can cause unstable heart rhythms that may need medical attention.
- If any of the following occur during testing, turn off the power source to the circuit being tested: arching, flame, smoke, extreme heat, smell of burning materials or discoloration or melting of components.

⚠ Warning

Higher voltages and currents require greater awareness of physical safety hazards. Before connecting the test leads; turn off power to the circuit under test; set meter to the desired function and range; connect the test leads to the meter first, then connect to the circuit under test. Reapply power. If an erroneous reading is observed, disconnect power immediately and recheck all settings and connections.

⚠ Warning

This meter is designed for trade professionals who are familiar with the hazards of their trade. Observe all recommended safety procedures that include proper lock-out utilization and the user of personal protective equipment that includes safety glasses, gloves and flame resistant clothing.

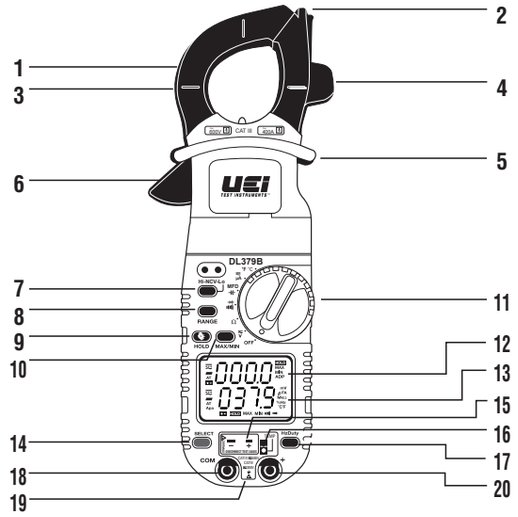
Symbol Definitions

⚠	Equipment is safe for connection and disconnection to Live conductors	⏚	Ground
~	AC Alternating Current	⚠	Warning or Caution
⎓	DC Direct Current	▣	Double Insulation (Protection Class II)
≂	Not Applicable to Identified Model	▭+	Battery

Category Definitions

Measurement Category	Short-Curcuit (typical) kA[a]	Location in the building installation
II	< 10	Circuits connected to mains socket outlets and similar points in the MAINS installation
III	< 50	Mains distributions parts of the building
IV	> 50	Source of the mains installation in the building

CONTROLS AND INDICATORS



1. Clamp jaw: Measure inductive AC current. Jaw opens to 1.25" (32mm).
2. Wire Separation Tab/NCV Sensor: Used to isolate an individual wire from a bundle for testing. NCV sensor helps detect live voltage.
3. Conductor Alignment Marks: Used to aid in the visual alignment of a conductor when measuring inductive amperage. Greatest accuracy is achieved when the conductor, inside the clamp, is centered at the intersection of these marks.
4. Test Lead Holder: Used for hands-free use of one of the test probes.
5. Hand Guard: Used as a point of reference for the operator's safety.

⚠ Warning

Always keep your hands and fingers behind the hand guards when measuring current on exposed conductors. Contact may result in serious injury.

6. Clamp Lever: Opens and closes current clamp jaw.

   NOTE: *The clamp uses a high-tension spring to close the jaw. Do not allow fingers or objects to become pinched in the hinge as jaws close.*
7. NCV (Non-Contact Voltage) Button: Activates non-contact voltage function. Dual level indication on DL379B only.
8. Range Button: Used to select range for upper and lower display readings.
9. Hold/Backlight Button: Freezes readings or activates backlight and worklight. (Worklight available on DL379B and DL389)
10. Min/Max Button: Activates MIN/MAX capture function, cycles through minimum and maximum values. Press and hold for 2 seconds to return to live readings.
11. Rotary Function Switch: Turns meter on and is used to select the range or function.
12. Upper Display: Used to display current when measuring with the clamp head, or UEi's optional current hook adapter. Displays output from other accessories when connected to UEi's meter base.
13. Lower Display: Used to display input to test lead jacks. Includes AC/DC volts, frequency, resistance, diode, capacitance and AC/DC microamps (µA).
14. Select Button: Used to choose a measurement mode from selections with multiple options such as AC or DC volts; AC or DC microamps; resistance, diode, capacitance or continuity; Fahrenheit or Celsius.
15. Temperature Input Jack: Input jack for K-type thermocouple probe (available on DL379B and DL389).
16. Temperature Input Jack Lock: Move switch down to measure temperature.

    NOTE: *Test leads must be removed from input jacks prior to operating the temperature function.*
17. Hz/Duty Cycle Button: Used to toggle between frequency and duty cycle when in AC voltage measurement mode.
18. Common Terminal: The black test lead is plugged into this input jack to supply ground or "low" reference for all measurements.
19. Maximum Category Indicator: Indicates maximum voltage for the rated working category.

⚠ Warning

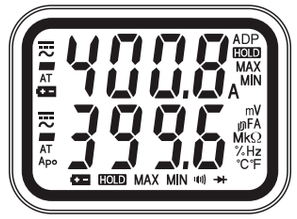
DO NOT exceed 1000V DC or AC RMS at either the common or multifunction input jacks as measured from earth ground.

20. Multifunction Input Jack: Used for measuring AC/DC volts, frequency, duty cycle, resistance, diode, continuity, and capacitance.

⚠ Warning

Use CAT III listed test leads or higher. DO NOT attempt to measure more than 1000V DC, 750V AC or 2000µA DC.

Displays and Indicators



Location of function icons on display may vary be model number.

~	AC indicator
⎓	DC indicator
-	Indicates a negative value (DC negative voltage)
MAX	Maximum value displayed
MIN	Minimum value displayed
A (top display)	Displaying Amps from clamp jaw or adapter
ADP (top display)	Displaying value from adapter
▭+	Low battery indication
HOLD	Hold function
▶|	Diode function
)))	Continuity function
nF / µF	Capacitance function (nanofarads or microfarads)
nA	Microamps function (1µA is 0.000001 Amp)
Hz	Frequency function
%	Duty cycle function
mV	Millivolts function (1 mV is 0.001 Volt)
APO	Auto power off is active
AT	Auto Range mode is active
O.L.	Displayed if input value exceeds selected range
Ω	Resistance function
°F	Degrees Fahrenheit
°C	Degrees Celsius

WARRANTY

The DL369/DL379B/DL389 is warranted to be free from defects in materials and workmanship for a period of three years 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 UEi'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. UEi 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.

For more information on warranty and service:

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

OPERATING INSTRUCTIONS

Auto Power Off

After powering off, the meter will turn on again when you change ranges, rotate the selector dial or press a button.

NOTE: *The APO is disabled during MIN/MAX mode.*

Backlight/Worklight (DL379B and DL389 only)

Press and hold the HOLD button for 2 seconds to activate. Lights automatically turn off in 2 minutes to save battery life.

NOTE: *After activating the lights, quick press to activate the hold mode.*

Automatic / Manual Range

The meter defaults to auto range mode and AT is indicated on the display while active. Press the RANGE button to cycle through available ranges. Selecting a specific range will put the meter in manual range mode and AT will no longer be displayed on screen. Press and hold the RANGE button to return to auto ranging mode.

NOTE: *Manual ranging will provide a faster input response over auto range.*

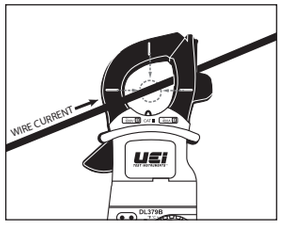
MIN/MAX

When using the MIN/MAX capture mode for amps, it is recommended that you first select the range of the expected maximum value. If this is not done it will lock in the lowest range for the initial measurement. If the maximum value exceeds this range the meter will capture O.L. as the maximum value.

Data Hold

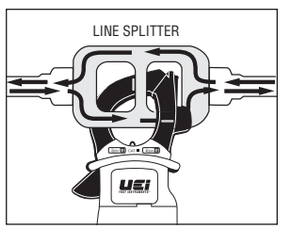
Press the HOLD button to activate. This will freeze the reading and range in the display for review.

Measuring AC Amps

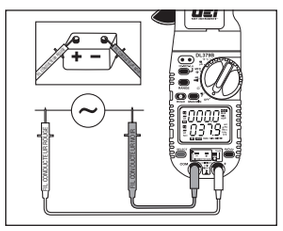


- Press SELECT to change between AC/DC
- Press RANGE to select range prior to using MAX/MIN.

NOTE: *Max capture is useful for motor inrush current.*

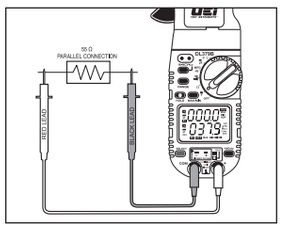


Measuring AC/DC Volts



- Press SELECT to change between AC/DC

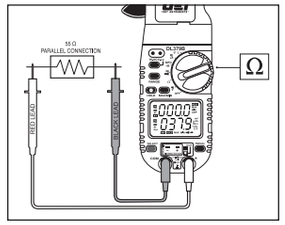
Measuring Frequency or Duty Cycle

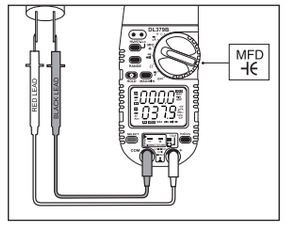


- Must be AC Volt or AC µA mode
- Press HZ/DUTY to select and change between frequency or duty cycle

NOTE: *Frequency greater than 1MHz will display 0.000*

Measuring Resistance and Capacitance





⚠ Warning

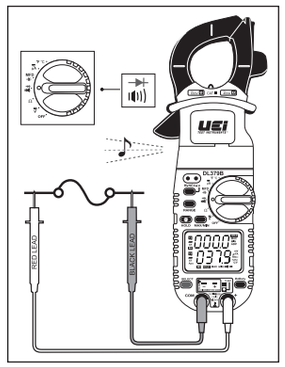
DO NOT measure resistance on a live circuit.

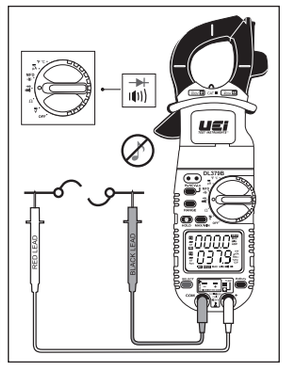
⚠ Warning

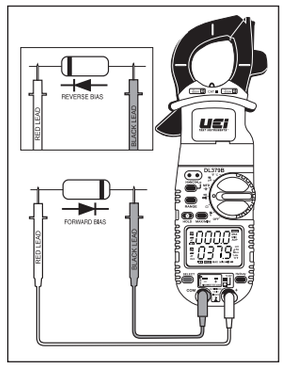
Safely discharge capacitor before measurement.

NOTE: *Leave meter connected to the capacitor for 10 seconds allowing the reading to settle. Larger capacitors could take up to 60 seconds.*

Measuring Continuity and Diode





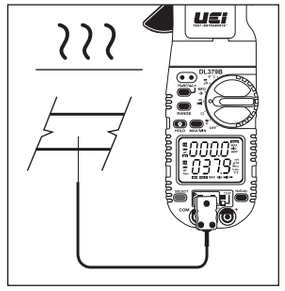


Press SELECT to change between continuity and diode

NOTE: *Continuity tone sounds at approximately <50Ω.*

NOTE: *Shows voltage drop if forward biased and O.L. if reversed biased.*

Measuring Temperature (DL379B and DL389 only)

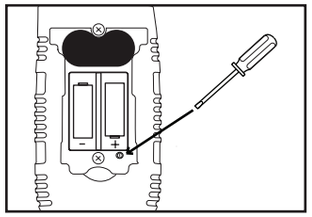


⚠ Warning

Disconnect test lead probes from voltage source and meter.

- Slide temperature input jack lock switch down prior to connecting temperature probe.
- Press SELECT to change between Fahrenheit or Celsius.

Temperature Calibration



- Connect temperature probe as directed above.
- Remove battery cover. Place temperature probe in a known standard temperature. Stirred crush ice in distilled water can be used for 32°F.
- Adjustments are made by accessing the potentiometer through the lower right access port in the battery compartment.
- Using a fine tip standard screwdriver, adjust the potentiometer to 32°F (0°C).

Measuring Non-Contact Voltage

- Press and hold the NCV button and move the sensor tip on the clamp head near the voltage source. Both a visual and audible alert will indicate voltage.
- The DL379B Hi/Lo NCV indicates LOW voltage at <120V and HIGH voltage at >120V.
- NOTE: The worklight will be disabled during NCV tests.

Attaching / Detaching Clamp Heads

- To detach the clamp head first unplug all test leads and probes. Firmly grab clamp head and base and pull apart. When attaching a clamp head or attachment, align heads and push together ensuring the heads lock together securely.

NOTE: *Leaving clamp head or attachment plugged in will drain battery.*

PERIODIC SERVICE

⚠ Warning

Repair and service of this instrument is to be performed by qualified personnel only. Improper repair or service could result in physical degradation of the meter, altering the protection from electrical shock and personal injury this meter provides to the operator. Perform only the maintenance task you are qualified to do.

Cleaning

Periodically clean your meter's case using a damp cloth. DO NOT use abrasive, flammable liquids, cleaning solvents or strong detergents as they may damage the finish, impair safety or affect the reliability of the structural components.

Battery Replacement

Remove screws from battery compartment cover on back of meter and remove cover. Replace batteries with fresh batteries paying attention to polarity position. Replace cover and screws.

SPECIFICATIONS

DC Volts

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

AC Volts (45Hz to 400Hz)

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

AC Amps Measurement - Jaw Input (45~400Hz)

Range	Resolution	Accuracy	Overload Protection
40A	0.01A	±(2.9% + 15 dgts)	400A
400A	0.1A	±(1.9% + 8 dgts)	

DL369: 400A range only
DL389: 45Hz to 400Hz True RMS (Crest factor<3:1)

DC Low Amps Measurement (Test Lead Input)

Range	Resolution	Accuracy	Overload Protection
400µA	0.01µA	±(1.2% + 3 dgts)	2000µA/600V RMS
2000µA	0.1µA		

AC Low Amps Measurement (Test Lead Input 45Hz to 400Hz)

Range	Resolution	Accuracy	Overload Protection
400µA	0.01µA	±(2.0% + 5 dgts)	2000µA/600V RMS
2000µA	0.1µA	±(1.5% + 5 dgts)	

DL389: 45Hz to 400Hz True RMS (Crest factor<3:1)

Resistance

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

Capacitance Measurement

Range	Resolution	Accuracy	Overload Protection
40nF	0.01nF	±(3.5% + 6 dgts)	600V RMS
400nF	0.1nF		
4µF	0.001µF		
40µF	0.01µF		
400µF	0.1µF		
4000µF	1µF		

DL379B: Capacitance range to 2000µF

Diode Test

Range	Open Circuit V	Test Current	Overload
2.0V	<1.6V DC	0.25mA	600V RMS

Frequency Measurement

Range	Resolution	Accuracy	Overload Protection
9.999Hz	0.001Hz	±(0.1% + 4 dgts)	600V RMS
99.99Hz	0.01Hz		
999.9Hz	0.1Hz		
9.999kHz	1Hz		
99.99kHz	10Hz		
199.9kHz	100Hz		

Minimum Frequency: 0.5Hz, DC V offset should be zero
Sensitivity: >10% of each AC Volt range except 4V (>20%) range only

Temperature Measurement

Range	Resolution	Accuracy	Overload Protection
-22˚ ~ 14˚F	0.1˚F	±(1.0% +5.4˚F)	30V RMS
15˚ ~ 752˚F		±(1.0% + 3.6˚F)	
(-30˚ ~ -10˚C)	(0.1˚C)	(1.0% +3.0˚C)	
(-9˚ ~ 400˚C)		(±1.0% + 2.0˚C)	

Duty (%) Cycle Measurement

Range	Accuracy	Overload Protection
01. to 99.9%	±(0.2% per kHz +0.1%) + 5 counts	600V RMS

0.5Hz to 100kHz (pulse width >2µsec)

Continuity Measurement