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Featuring The New
WORKLIGHT

Safety Tips

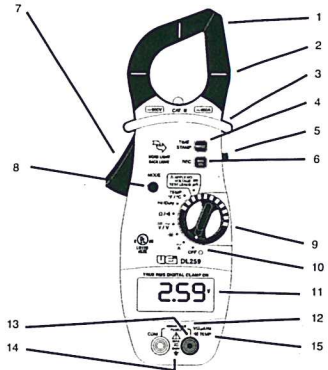
Before using this meter, read all safety information carefully. In this manual the word "**WARNING**" is used to indicate conditions or actions that may pose physical hazards to the user. The word "**CAUTION**" is used to indicate conditions or actions that may damage this instrument.



WARNING!

Higher voltages and currents require greater awareness of physical safety hazards. Before connecting the test leads; turn off the power to the circuit under test; set the 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.

Controls and Indicators



Introduction

The DL259 is a hand-held, battery powered digital TRMS multimeter with clamp-on current measuring capability. Back light and work area light.

Features include

- Lighted work area
- Auto / manual range
- Min/Max record with time stamp
- Data Hold
- TRMS AC Inductive Amps
- TRMS AC Volts
- DC Volts
- Ohms / Continuity
- Frequency / Duty Cycle
- Temperature (°F or °C) using K-type thermocouple
- Capacitance
- DC μ A (micro amps)

- Clamp:** Used to measure inductive AC current. Opens to 1.25" (32 mm).
NOTE: The clamp uses a high tension spring to close the jaw. Do not allow fingers or objects to become pinched in the base as jaw closes.
- 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.
- Hand Guard:** Used as a point of reference for the operators safety.



WARNING!

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

- Range and Time Stamp Push-button:** Switches meter from auto to manual ranging. Also initiates the time stamp function when used in conjunction with MAX/MIN/Recording.
- Hold Push-button:** Freezes the value displayed on the digital read-out. This function does not work while recording is in progress. Also turns on back light and work area light.
- MAX/MIN Push-button:** Use to cycle through recorded and present values, and the time stamp function.
- Clamp Lever:** Opens and closes current clamp jaw.
- Mode Push-button:** Toggles the color-coded optional functions indicated on the rotary function switch (AC to DC volts, ohms to continuity and degrees centigrade to fahrenheit, frequency to duty cycle).

INTERNATIONAL SYMBOLS

	Dangerous Voltage		Ground
	AC- Alternating Current		See Explanation
	DC-Direct Current		Double Insulation (Protection Class II)
	Either DC or AC		Fuse

9. **Rotary Function Switch:** Used to power the meter on and off, or to select the available measurement functions:
- Measures inductive AC current using the clamp
 - Measures capacitance at the test lead inputs
 - Measures volts AC or DC Volts at the test lead inputs
 - Measures resistance or continuity at the test lead inputs
 - Measures Hz and Duty Cycle
 - Measures temperature with the K-type thermocouple and adapter plug at the test lead inputs
 - Measures DC microamps using the test lead inputs

CAUTION!

When taking DC current and micro amp measurements, this meter must be connected in SERIES with the circuit (or circuit element) under test. **NEVER CONNECT THE TEST LEADS ACROSS A VOLTAGE SOURCE** while the rotary switch is set to the microamps position. This can cause damage to the circuit under test or this meter.

10. **Off Position:** Turns the meter off. Always store your meter in the off position. If the meter will not be used for a month or more, remove the batteries.
11. **Display:** Communicates function, range and value information to the user. (See items 16 through 29)
12. **400 μ A MAX FUSED:** Indicates that the DC μ A ranges are fuse protected.
13. **Common Terminal:** The black test lead is plugged into this terminal to supply the ground or "low" reference for all measurements.
14. **MAX \approx 600V $\overline{\text{V}}$:** Indicates that a maximum of 600 Volts can be applied between the two terminals or between earth ground and any terminal

WARNING!

Do Not Exceed 1000 volts DC or AC-RMS at either the common or multifunctional input ports, as measured from earth ground.

15. **V Ω μ A Hz $\overline{\text{V}}$ TEMP Terminal:** The red lead is plugged into this terminal. It is used for AC/DC volts, ohms, continuity, microamps, frequency, duty cycle, capacitance and temperature measurements.

The following describes the indicators displayed by the LCD.



16. **BAT** this symbol appears when the battery needs replacement.
NOTE: A low battery will adversely affect accuracy.
17. **AC:** Indicates that alternating current/voltage is being measured.
18. **Minus (—):** Indicates the value measured has a negative polarity.
19. **DC:** Indicates that direct current/voltage is being measured.
20. **AT:** Indicates the meter is in the autoranging mode.
21. **MAX:** Indicates the meter is displaying the maximum value recorded.

- True RMS
- Work Light and Backlit Display
- AC Amps / DC Micro Amps
- AC/DC Volts
- Record Mode w/ time stamp
- Temperature
- Capacitance
- Resistance and Continuity
- Frequency & Duty Cycle
- Autoranging manual override
- MIN/MAX & Data Hold
- Three year limited warranty
- Valeurs Efficaces Vraies
- Eclairage Intégré
- Ampères CA/CC
- Volts CA/CC
- Fonction d'enregistrement avec Horodatage
- Température
- Capacité
- Résistance et Continuité
- Fréquence et fonction de test de diode
- Lecture Automatique avec
- Capacité de Lecture Manuelle
- MIN/MAX et Enregistrment des Données
- Garantie Limitée des Trois Ans
- Lectura Verdadera (TRMS)
- Luz Integrad
- CA Amperes/ CD Bajo Amperes
- CA y CD Voltios
- Modo de Grabado con hora impresa
- Temperatura
- Continuidad y Resistencia
- Capacitancia y frecuencia
- Prueba de diodos
- Autorango con cambio manual
- MIN/MAX y Retencion de Datos
- 3 anos de Garantia Limitada

22. **R** Indicates the meter is currently recording the maximum and minimum values.
23. **MIN:** Indicates the meter is displaying the minimum value recorded.
24. **•|):** Indicates the meter is in the continuity measurement mode.
25. **D.H.:** Indicates the value displayed is held on screen (the data hold button is pressed).
26. **R.H.:** Indicates the meter is in the manual ranging mode (the Range button has been pressed).

27. **Function and Units of Measurement:**

Symbol	Function or Value
°C	Degrees Centigrade
°F	Degrees Fahrenheit
μ F	Micro Farads
mV	Millivolts
V	Volts
μ A	Micro Amps (Test Lead Measurement Ranges)
A	Amps (Inductive Clamp Ranges)
M	Mega (Value x 1,000,000)
K	Kilo (Value x 1,000)
Ω	Ohms (Resistance Value)
Hz	Hertz
%	Duty cycle

Continued on other side →

28. **OFL**: This symbol appears when the input value exceeds the meters selected range or overall specification.

Instructions

Auto power off

The instrument automatically shuts off after 30 minutes of inactivity. The meter is considered active when there is a change of at least 10 digits during the period (i.e., the meter senses a change from 24.04 volts to 24.14 volts)

To disable this function; press and hold the "MIN/MAX" or the "RANGE" button while turning the meter on. This must be done to record values for periods longer than 30 minutes.

Back-light / work light

Press and hold the Data hold / back light button for two seconds. This will activate the display back light and work area light for 30 seconds. Pressing D/H the button again for two seconds will also turn it off.

Auto / Manual Range

In auto range the meter will select the best range for the measured value, and "AT" indicate in the lower left of the display. Press "Range" to cycle through available ranges for each function. "AT" will not be on the display when locked in a specific range.

When using the record mode it is recommended that you select the range first. The record function will lock the meter into the range first measured, and could indicate over-range (**OFL**) for maximum or minimum values outside this range. Manual range will also provide a faster response to inputs.

Data Hold

Press data hold (D/H) button to activate. This will freeze the reading and range in the display for your review.

Record and Time Stamp

The meter will record minimum, maximum and elapsed time for all functions except capacitance. To activate and review recorded events see figure 1.

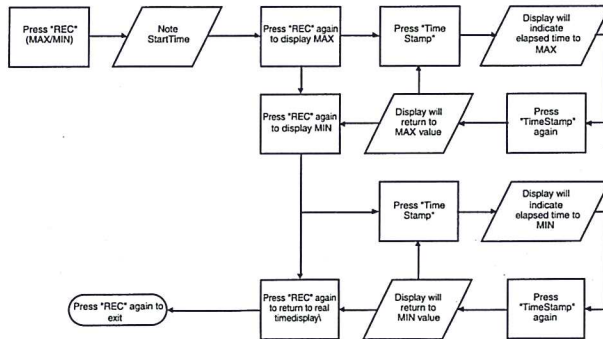
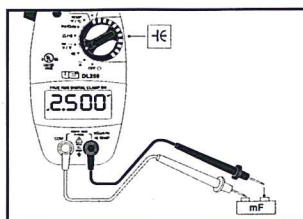


Figure 1

Capacitance

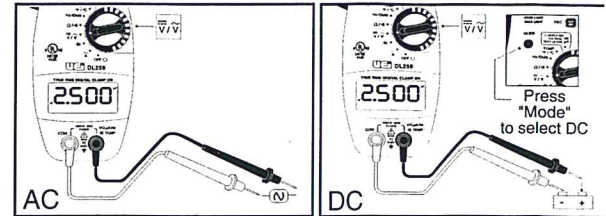


NOTE: Some large capacitors take approximately 10 seconds to settle on a value.

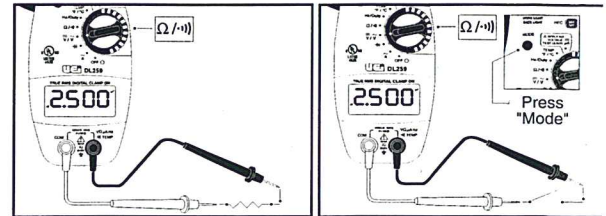


WARNING!
Capacitors should be completely discharged prior to testing.

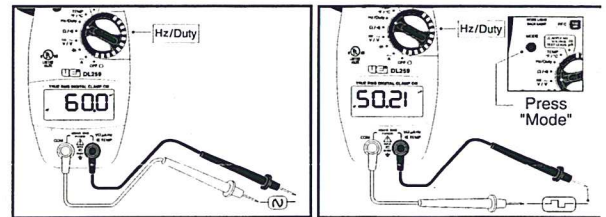
Measure AC or DC Volts



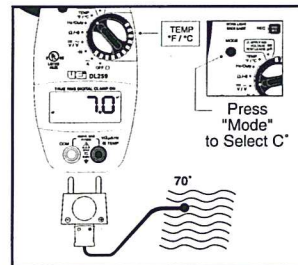
Measuring Resistance and continuity



Measuring Frequency / Duty Cycle



Measuring Temperature

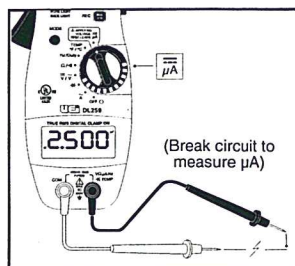


Note: Press "Mode" to select °C or °F.

Temperature adjustment

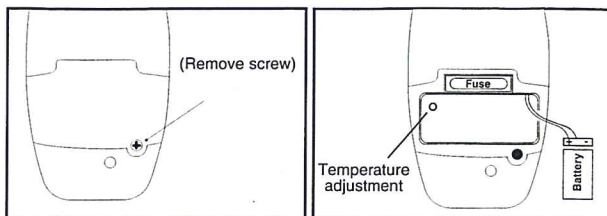
The DL259 temperature can be adjusted to a known set point. The best method is in a stirred mix of crushed ice and water. Insert thermocouple in meter, select temperature, then measure the ice mix. Adjustment for setting to 32°F is inside battery compartment. (See maintenance section)

Measuring μA



Maintenance

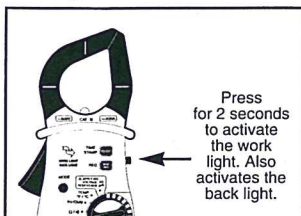
Battery and fuse replacement



Battery – 9V NEDA 1604 or 6LR61

Fuse – AF155, 500mA / 660V

Work Light



Specifications

1. AC amps Measurement (45Hz-400Hz)

Range	Resolution	Accuracy	Overload Protection
40A	0.01A	±3.0%+20dpts	400A Continuous
400A	0.1A	±2.0%+5dpts	

Crest Factor < 3 : 1

2. DC Low amps Measurement

Range	Resolution	Accuracy	Overload Protection
40µA	0.01µA	±1.0%+5dpts	400µA/600V
400µA	0.1µA	±1.5%+2dpts	

3. DC Volts Measurement

Range	Resolution	Accuracy	Overload Protection
4V	1mV	±0.9%+2dpts	600V RMS
40V	10mV		
400V	100mV		
1000V	1V		

4. AC Volts Measurement (45Hz-2kHz)

Range	Resolution	Accuracy	Overload Protection
4V	1mV	±1.9%+3dpts	600V RMS
40V	10mV		
400V	100mV		
1000V	1V		

Crest Factor < 3 : 1

5. Ohms Measurement

Range	Resolution	Accuracy	Overload Protection
400Ω	100mΩ	±0.9%+3dpts	600V
4kΩ	1Ω		
40kΩ	10Ω		
400kΩ	100Ω		
4MΩ	1kΩ	±1.2%+3dpts	
40MΩ	10kΩ	±1.5%+5dpts	

6. Capacitance Measurement

Range	Resolution	Accuracy	Overload Protection
1µF	0.001µF	±1.7%+5dpts	600V
10µF	0.01µF		
100µF	0.1µF		
1000µF	1µF		
10000µF	1µF	±2.5%+15dpts	
		±15%+100dpts	

7. Temperature Measurement

Range	Resolution	Accuracy	Overload Protection
-40° to 68° (-40 to 20°)	0.1° (0.1°)	±(5.4°) ±(3.0°)	600V
68° to 400° (20° to 400°)	0.1° (0.1°)	±1.0%+3.6° (±1.0%+2.0°)	
400° to 2,498° (400° to 1,370°)	1° (1°)	±3% of reading (±3% of reading)	

8. Frequency Measurement

Range	Resolution	Accuracy	Overload Protection
999.9Hz	0.1Hz	±0.05%+2d	600V
9.999kHz	1Hz		
99.99kHz	10Hz		

9. Continuity Measurement

Open circuit voltage <2.7V	Overload Protection
Threshold Approx: <50Ω	600V

10. % Duty Cycle

Range	Resolution	Accuracy	Overload Protection
0.0-99.9%	0.1%	±0.2% per kHz+0.1%	600V

Probe : The probes has a UL listed, rated minimum 600V, minimum 10A, CAT III and Double insulated.

Physical Specifications

Operating Temperature : 32 °F to 104 °F (0 °C to 40 °C)

Storage Temperature : -4 °F to 140 °F (-20 °C to 60 °C)

Relative Humidity : Maximum relative humidity 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40°C

Altitude : Operating - up to 2000 m
Storage - 10000 m

Pollution Degree : 2

Installation Category : CAT III

Certifications : UL & cUL standard UL 3111-1 Listed

Limited Warranty

The DL259 is warranted to be free from defects in materials and workmanship for a period of three year's 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. Return the unit postage paid and insured to:

1-800-547-5740 • FAX: (503) 643-6322

Service: (800) 308-7709

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

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