

USEI

TEST INSTRUMENTS™

DL579

Digital HVAC Clamp Meter w/ CATIII 600V

INSTRUCTION MANUAL

ENGLISH



Intertek

300V

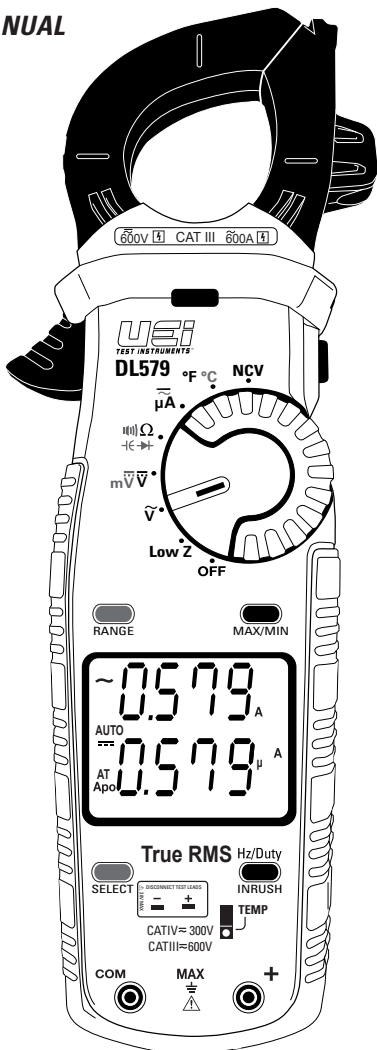
CAT IV

600V

CAT III

RoHS

Com liant



**Test Equipment
Depot**



1-800-517-8431

5 Commonwealth Ave
Woburn, MA 01801
Phone 781-665-1400 Toll
Free 1-800-517-8431

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Functions

- True RMS
- 750V AC/1000V DC
- 600A AC
- AC/DC microamps: 2000 μ A
- Capacitance: 6000 μ F
- Frequency: 99.99kHz
- Duty cycle
- Diode test
- Audible continuity
- NCV
- LRA Inrush
- Temperature range: -328° to 2462°F
- Resistance: 60M Ω
- Low Z (Low Impedance)

Features

- Dual display
- Auto/Manual ranging
- Back light
- Low battery indicator
- Data Hold
- Auto power off
- Test lead storage
- Auto calibration
- Built-in Magnet w/hanging strap (Optional)
- Visible high-voltage alert
- Input jack locks
- Min/Max
- Battery compartment latches

General Specifications

- Operating Temperature: 32° to 122°F (0° to 50°C)
- Storage Temperature: -4° to 140°F (-20° to 60°C)
- Operating Humidity: <80%
- Pollution Degree: 2
- Display: 3 5/6 digits 6,000 count
- Back light: Yes
- Refresh Rate: 3/sec
- Over-range: "OL" is displayed
- Apo: Auto power off after 30 minutes of use.
- Dimensions: 8.7" x 2.52" x 1.41"
- Item Weight: 0.65 lb
- CAT Rating: CATIV 300V, CATIII 600V
- Certifications: cETLus UL 61010-1: 2012, IP42
- Battery Type: (AAA) 2
- Test leads: Test lead ATL55 w/alligator clips

Important Safety Warnings

WARNING

Read entire Safety Notes section regarding potential hazards and proper instructions before using this meter. 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

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

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.
- Ensure meter leads are fully seated and keep fingers away from the metal probe contact when making measurements. Always grip the leads behind the finger guards molded into the probe. For information on test lead shields instructions on page 19.
- Do not open the meter to replace batteries while the probes are connected.
- Use caution when working with voltages above 60 DC or 25 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 lockout power before measuring resistance or capacitance.
- Always adhere to national and local safety codes. Use proper personal protective 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 of current can be dangerous.
- Always disconnect the live test lead 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: arcing, 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 to provide HVAC/R technicians with the capabilities they need to diagnose and repair HVAC/R system. Observe all recommended safety procedures that include proper lockout utilization and use of personal protective equipment that includes safety glasses, gloves and flame resistant clothing.

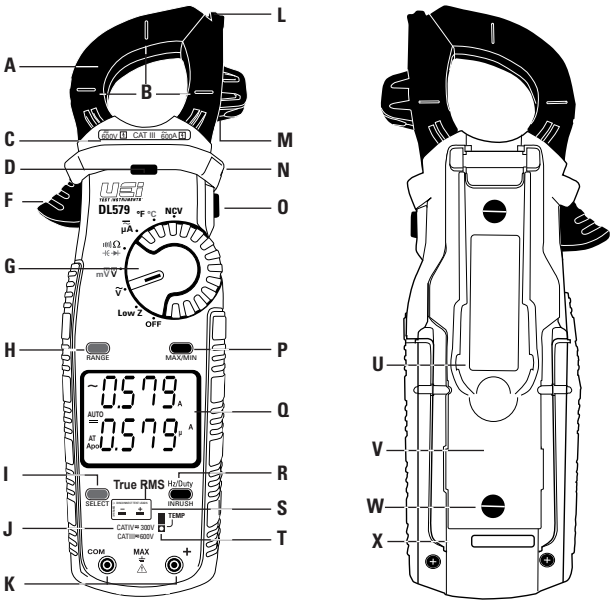
Symbols

	AC (Alternating current)		DC (Direct current)
	Negative		AC/DC Voltage or Current
AT	Auto-ranging	OL	Overload: Range Exceeded
Apo	Auto power off Active	NCV	Non-Contact Voltage
	Low Battery	HOLD	Hold/Capture Value
MIN	Minimum measured value displayed	MAX	Maximum measured value displayed
%	Duty Cycle	Hz	Hertz/Frequency
V	Voltage	INRUSH	Inrush
A	Amperage	Ω	Ohms/Resistance
	Diode		Capacitance
nF	Nanofarad	μF	Microfarad
μA	Microamps		Continuity
°F	Degrees Fahrenheit	°C	Degrees Celsius
M	Mega ($\times 10^6$ or 1,000,000)	m	Milli ($\times 10^{-3}$ or 0.001)
k	Kilo ($\times 10^3$ or 1,000)	μ	Micro ($\times 10^{-6}$ or 0.000001)
	Warning or Caution		Ground
	Dangerous Levels		Double Insulation (Protection to Class II)
	Safe for disconnect from live conductors	- - - -	No reading detected
kΩ	Kilo Ohms	EF	Electric Field

Category Definitions

Measurement Category	Short-Circuit (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

Overview



- A. Clamp:** Measure inductive AC current. Opens to 1.25" (32.0mm).
- B. Conductor Alignment Marks:** Use to aid 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.
- C. Category Max Indicator:** Maximum CAT Rating for clamp jaw.
- D. NCV Alert Light:** Indicates voltage when in NCV (Non Contact Voltage) mode and High Voltage alert.
- F. 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 base as the jaws close.
- G. Rotary Selector Dial:** Set Rotary Selector Dial desired function
- H. Range Button:**
- Press to set manual range desired
- I. SELECT Button:**
- Press AC or DC on Low Z setting; DCmV or DCV on Voltage setting; to activate ohms, Continuity, Diode, Capacitance on Ohms/Continuity/ Diode/Capacitance setting; AC or DC on μA setting; $^{\circ}\text{C}$ or $^{\circ}\text{F}$ temperature setting
- J. Category Max Indicator:** Maximum CAT Rating for input jacks.
- K. Test Lead Input Jacks:** Multifunction and Positive input jacks.
- Multifunction input port used for measuring: AC or DC volts, resistance, continuity, diode, capacitance, AC or DC μA .
- L. Wire Separation Tab/ NCV sensor:** Use to isolate an individual wire from a bundle for testing. NCV sensor detects live voltage.
- M. Test Lead Holder**
- N. Hand Guide:** Used as a point of reference for the operator's safety.
- O. Hold/Back light Button:**
- Press to hold the reading on the display. Press again to return to live reading.
 - Press and hold to turn on Back light.
 - Backlight turn off after 60 seconds.
 - Press hold during power up to disable the Auto power off function.

Overview (Cont.)

P. Min/Max Button:

- Press to enter MIN/MAX mode.
- Step through maximum(MAX), minimum(MIN) and present values.
- Press and hold return to Live readings

Q. Display:

- High contrast dual display with backlit.
- AC Amps reading will always display on upper display.

R. Inrush/Hz Duty Button:

- Press to enter LRA Inrush mode (See page 18 for details) (must be in AC Amps mode first).
- Press again to return to live readings.
- Press and hold to select Hz/Duty in AC volt or AC μ A.

S. K-Type Temperature Probe Inputs

T. Input Jack Lock: Switch to use Temperature or Test lead inputs

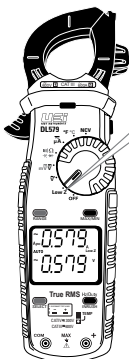
U. Built-in versatile magnet to use as a mount or as a strap (optional)

V. Battery Cover: Easy access for replacing batteries without breaking calibration seal.

W. Battery Compartment Latches

X. Serial Number

Low Z (Low Impedance)



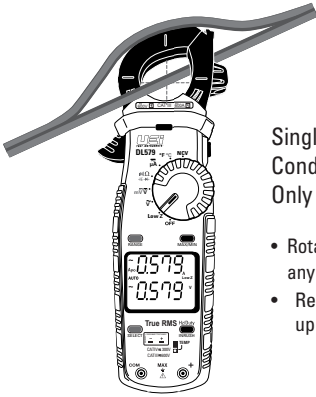
Low Z

- Rotate Selector Dial to Low Z
- Default = Auto Selection (DC or AC)
- Press SELECT x1 = $\overline{\text{V}}$
- Press SELECT x2 = $\tilde{\text{V}}$

Features:



AC Amps <600A Jaw



Single Conductor Only

- Rotary selector dial = any position
- Reading show on upper display

- AC Amps can be measured in any position of the rotary selector dial.
- Center wire in guides for best accuracy.
- Opposing currents cancel each other (use line-splitter when necessary).
- Keep hands below guard when measuring high current levels.
- Do not attempt to measure more than 600A AC.

Features:



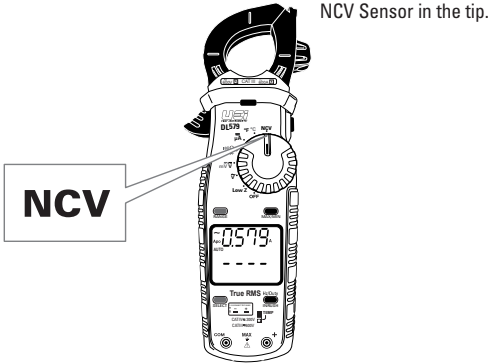
AC Amps Measurement - Jaw input

Range	Resolution	Accuracy	Overload Protection
60.00A	0.01A	±2.0% + 8dgts	600V RMS
600.0A	0.1A		

45Hz to 400Hz True RMS

Minimum Current for Clamp Measurement: 0.3A

Non-Contact Voltage



- Rotate Rotary Selector Dial to **NCV** position move the tip of the clamp meter near voltage source.
- Non-Contact Voltage Detection is used to detect power with sensor located in the tip of the clamp head, indicates positive response with both an Audible and Visual alert.
- Do not use Non-contact voltage detector to determine if there is current on the wire. Detection operation could be affected by socket design, insulation thickness, type or other factors.
- Voltage indicator light may also light when voltage (>AC/DC 30V) is present on the meter's input jack or from an external interference such as motors, flashlights, etc.

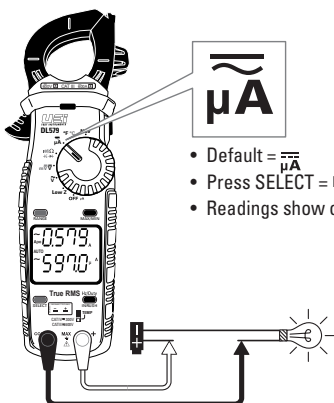
Features:



On Voltage

Approx. 24V AC

AC/DC Microamps: <math> < 2000\mu A </math>



- Default = $\overline{\mu A}$
- Press SELECT = $\tilde{\mu A}$
- Readings show on lower display

WARNING

- Do not attempt to measure more than 2000 μA .

Features:



DC Microamps Measurement - Test lead input

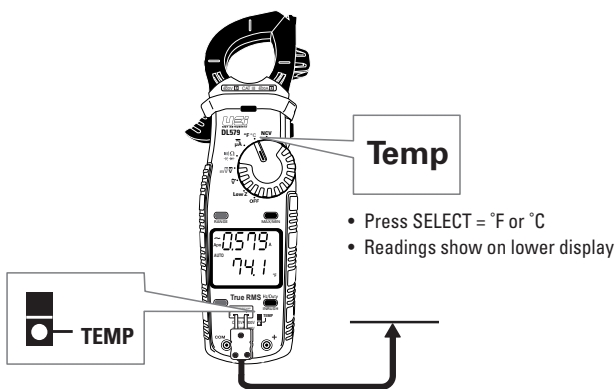
Range	Resolution	Accuracy	Overload Protection
600.0 μA	0.1 μA	$\pm 1.2\% + 3\text{dgts}$	600V RMS
2000 μA	1 μA		

AC Microamps Measurement - Test lead input

Range	Resolution	Accuracy	Overload Protection
600.0 μA	0.1 μA	$\pm 2.0\% + 5\text{dgts}$	600V RMS
2000 μA	1 μA	$\pm 1.5\% + 5\text{dgts}$	

45Hz to 400Hz True RMS

Temperature °F/°C



- Disconnect test lead probes from voltage source and meter.
- Move Input Jack Locks to “TEMP” setting.
- Use K-Type thermocouple temperature probes only.
- Stated accuracy does not account for thermocouple accuracy.

Features:



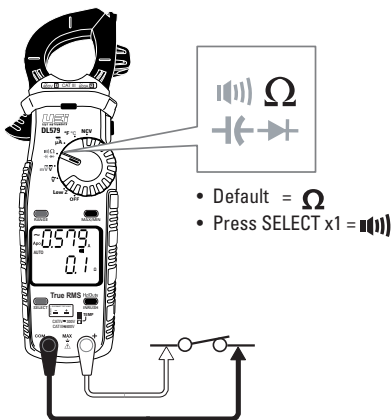
Range	Resolution	Accuracy	Overload Protection
-328° to 999°F	0.1°F	±(1.0% + 3.6°F)	30V RMS
(-200° to 999°C)	(0.1°C)	±(1.0% + 2.0°C)	
1000° to 2462°F	1°F	±(1.0% + 3°F)	
(1000°C to 1350°C)	(1°C)	±(1.0% + 2°C)	

Temperature Calibration

The new DL579 clamp meter offers a digital field temperature calibration procedure to make the process easier. Here are the steps.

- 1) Set dial position to “°F/°C”
- 2) Press and hold SELECT button for about 2 seconds
- 3) Press HOLD button while “FCAL” is displayed on top LCD to enter Field Calibration.
- 4) After immersing temperature probe in ice bath and temperature is stable, press and hold Hz/Duty button

Continuity



- Buzzer sounds at less than $< 40\Omega$.

WARNING

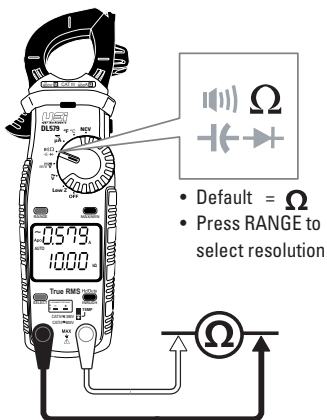
- Do not measure resistance on a live circuit.

Features:



Open circuit voltage $< 0.64V$	Overload Protection
Threshold Approx : $< 40\Omega$	600V RMS

Resistance: $< 60M\Omega$



Features:

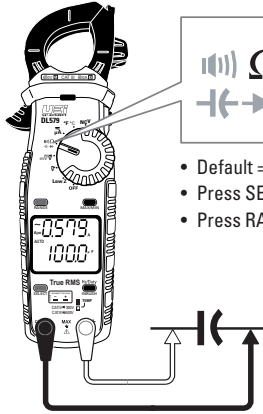


WARNING

- Do not measure resistance on a live circuit.

Range	Resolution	Accuracy	Overload Protection
600.0 Ω	0.1 Ω	$\pm 1.0\% + 4\text{dpts}$	600V RMS
6.000k Ω	0.001k Ω		
60.00k Ω	0.01k Ω		
600.0k Ω	0.1k Ω		
6.000M Ω	0.001M Ω	$\pm 2.0\% + 4\text{dpts}$	
60.00M Ω	0.01M Ω		

Capacitance



- Default = Ω
- Press SELECT x3 = $\text{---}\epsilon\text{---}$
- Press RANGE to select resolution

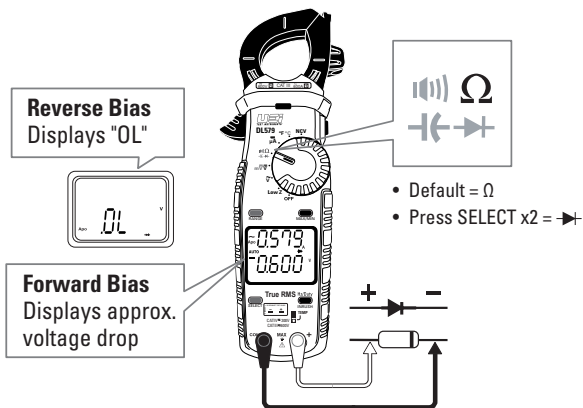
Features:



Range	Resolution	Accuracy	Overload Protection
60.00nF	0.01nF	3.5% + 6dgts	600V RMS
600.0nF	0.1nF		
6.000uF	0.001uF		
60.00uF	0.01uF		
600.0uF	0.1uF		
6000uF	1uF		

⚠ WARNING To avoid damaging the meter or equipment under test, safely discharge Capacitors before measuring capacitance. Large value capacitors should be discharged through an appropriate resistance load. Use the DC Voltage function to confirm the capacitor discharge.

GOOD DIODE



BAD DIODE

Open Diode
Displays "OL"
Both directions



or



'0' Both directions

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

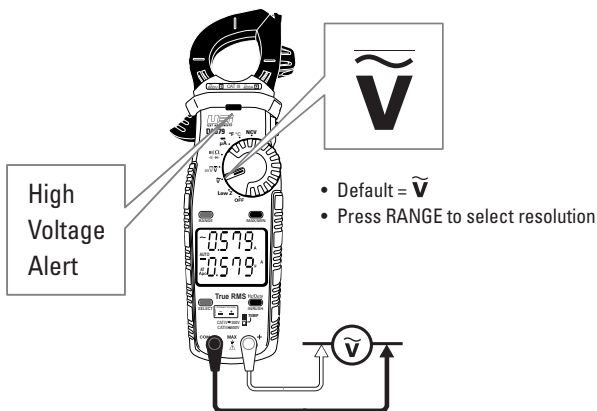
Features:



Diode Test

Range	Open Circuit Voltage	Test Current(Typical)	Overload Protection
6.0V	< 3.0V DC	0.25mA	600V RMS

Voltage 750V AC



WARNING

- Use CATIII rated test leads or higher.
- Do not attempt to measure more than 750V AC.
- Keep hands below line when measuring high current levels.

WARNING

- High Voltage indicator will display and audible alert will sound over 600V AC
- High Voltage indicator will display (without audible alert) over 30V AC

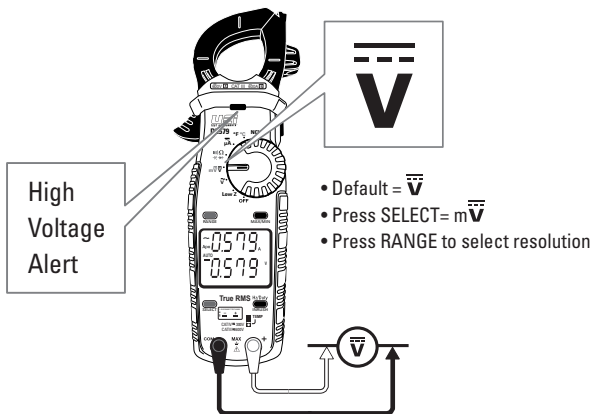
Features:



Range	Resolution	Accuracy	Overload Protection
600.0mV	0.1mV	±2.0% + 5dpts	750V RMS
6.000V	0.001V		
60.00V	0.01V		
600.0V	0.1V		
750V	1V		

True RMS: 45Hz to 400Hz

Voltage 1000V DC



WARNING

- Use CATIII rated test leads or higher.
- Do not attempt to measure more than 1000V DC.
- Keep hands below line when measuring high current levels.

WARNING

- High Voltage indicator will display and audible alert will sound over 600V DC
- High Voltage indicator will display (without audible alert) over 30V DC

Features:



DC Volts

Range	Resolution	Accuracy	Overload Protection
600.0mV	0.1mV	±0.5% + 4dgt	1000V RMS
6.000V	0.001V		
60.00V	0.01V		
600.0V	0.1V		
1000V	1V	±0.8% + 10dgt	

Frequency (Hz)/Duty Cycle (%)



- Default = Volts AC
- Press and hold Hz/Duty/INRUSH = Hz
- Press and hold Hz/Duty/INRUSH x2= %

⚠ Use CAT III rated leads or higher.

Rotate Rotary selector Dial to \tilde{V} position select AC voltage, press and hold the button for Frequency and Duty Cycle modes.

⚠ WARNING

Do not attempt to measure more than 750V AC.

Features:



Hz/Duty



INRUSH

Frequency Measurement - Test lead input

Range	Resolution	Accuracy	Overload Protection
99.99Hz	0.01Hz	0.1% + 4dpts	1000V RMS
999.9Hz	0.1Hz		
9.999kHz	0.001kHz		
99.99kHz	0.01kHz		

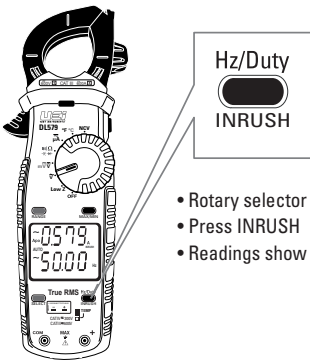
Minimum Frequency: 0.5Hz, DC V offset should be zero

Sensitivity: > 10% of each AC volt range except 4V (>20%) range only

Duty Cycle - Test lead input

Range	Accuracy	Overload Protection
1.0 to 99.0%	$\pm(0.2\% \text{ per kHz} + 0.1\% + 5 \text{ dpts})$	1000V RMS

LRA Inrush



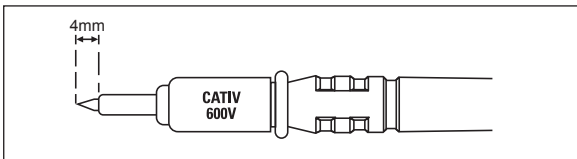
- Rotary selector Dial = any position
- Press INRUSH
- Readings show on upper display

The UEi LRA Inrush is programmed to properly capture the starting current for compressor motors. Inrush current can be measured in any position of the rotary selector Dial.

- Select the range capable of capturing the maximum value.
- Press the INRUSH button – INRUSH will now be shown on the screen.
- Activate the compressor and read value on the display.
- Press the INRUSH button to return to live readings.

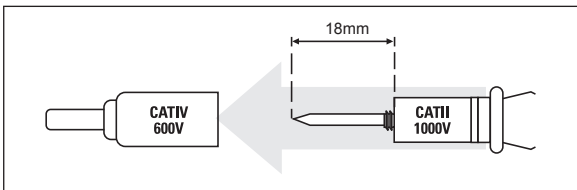
Test Lead Notes

Cat IV and CAT II Measurement Locations



- Ensure the test lead shield is pressed firmly in place. Failure to use the CAT IV shield increases arc-flash risk.

CAT II Measurement Locations

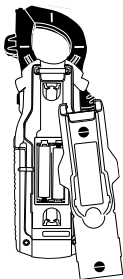




- CAT IV shields may be removed for CAT II locations. This will allow testing on recessed conductors such as standard wall outlets. Take care not to lose the shields.

⚠ WARNING: Test Lead category protections apply only to test leads and should not be confused with the meter's specific CAT rating. Observe the maximum category protection indicated on the meter the test leads are plugged into.

⚠ CAUTION: If the test leads need to be replaced, you must use a new one which should meet EN 61010-031 standard, rated CATIII 1000V or better.

Battery Replacement



- Rotate Battery Compartment Latches to open position 
- Remove battery cover
- Replace the old batteries with 2 new (AAA) batteries
- Replace the battery cover
- Rotate Battery Compartment Latches to lock 

Warranty

The DL579 is warranted to be free from defects in materials and workmanship for a period of 1 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 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.

Warranty only covers hardware and does not extend to software applications.

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.



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

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.

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 General Specifications section, allow the instrument to return to normal operating conditions before using it.