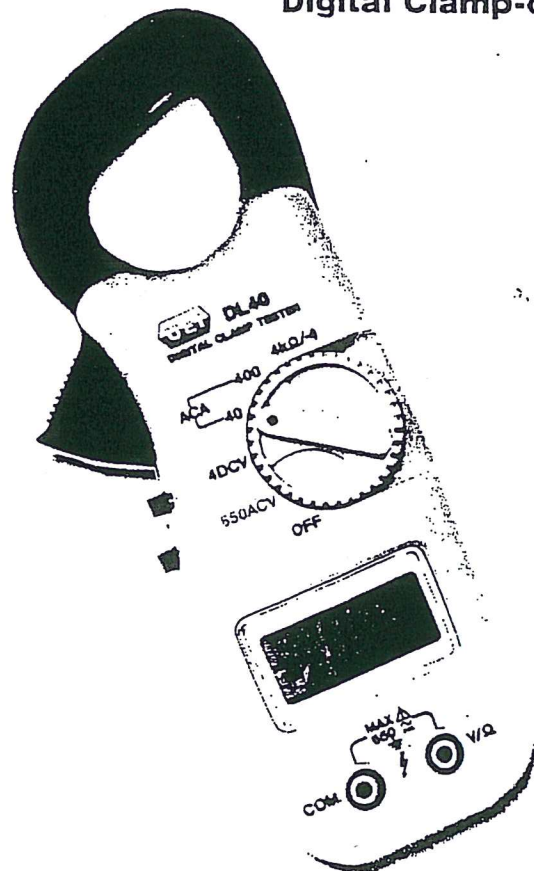




DL40 Digital Clamp-on



OPERATING INSTRUCTIONS



8030 SW NIMBUS
BEAVERTON, OR 97008

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Made in Korea

DL40 INSTRUCTIONS

Congratulations!

You have just purchased a state-of-the-art tool to help you to do your job better and more efficiently. Please take time to read this manual to familiarize yourself with its capabilities before using the instrument.

Features of the DL40








- Designed to meet or exceed IEC 348 and UL1244
- 3 3/4 digit LCD display with 0.5" tall numerals
- Data Hold
- Peak Hold
- Continuity Buzzer
- Auto Polarity
- Low Battery Indication
- 5 Year Limited Warranty
- Ruggedized to withstand a 10ft. drop

Safety Considerations

Warning!

Observe all safety precautions when measuring higher voltages and/or currents. Turn off power to the circuit under test, set the DL40 to the desired function and range and connect the test leads to the DL40 and then to the circuit under test. Reapply power. If an erroneous reading is observed, disconnect power immediately and recheck all settings and connections.

International Symbols

	DANGEROUS VOLTAGE		GROUND
	AC-ALTERNATING CURRENT		SEE EXPLANATION
	DC-DIRECT CURRENT		DOUBLE INSULATION (Protection Class II)
	EITHER DC OR AC		

Safety Tips

Exceeding the specified limits of this meter is dangerous and can expose the user to serious and possibly fatal injury. To ensure safe and appropriate use, please follow the safety guidelines below.

- Do not try to measure any voltage that exceeds 4DCV or 650ACV peak to peak.
- Voltages above 25V AC or DC may constitute a serious shock hazard.
- Do not attempt to use this meter if either the meter or the test leads have been damaged.
- Turn off power, disconnect the battery, and discharge all capacitors on the unit under test before using the Ω .
- When measuring current, turn the power off on the unit under test before connecting the jaws of the meter around the wire.
- Do not exceed the limits shown on each function page.

Input Jacks and Push Buttons

"COM" Input Jack

The black test lead is plugged into this jack for all measurements.

"V/Ω" Input Jack

The red test lead is plugged into this jack for all ACV, DCV, OHM, and Continuity Buzzer test functions.

"DATA HOLD" Push-button

Freezes the reading on the LCD for all functions and ranges.

"PEAK HOLD" Push-button

Displays the highest reading measured on all functions and ranges.

General Specifications

Operating Temperature	32° to 122°F (0° to 50°C)
Storage Temperature	-4° to 140°F (-20° to 60°C)
Relative Humidity	0% to 80% RH
Battery Type	9V, NEDA, 1604 or 6F22 or 006P
Battery Life	200 Hrs typical, Alkaline Battery
Size	7.13" x 2.63" x 1.25"
Weight	1 lb. 3 oz.
Safety	Meets or exceeds IEC 348, CSA C22.2 No. 231, ISA-DS82, and UL1244

Measuring DC Volts

Warning!

To avoid the risk of electrical shock, instrument damage and/or equipment damage, input voltages must not exceed 4 volts DC. Do not attempt to take any unknown voltage measurements that may be in excess of 4 volts DC.

1. Set function and range switch to the 4 DCV range.
2. Plug the red test lead into the "V/Ω" input jack and the black lead into the "COM" input jack of the instrument.
3. Disconnect the power from the circuit to be tested.
4. Connect the test leads to the circuit to be tested.
5. Reapply power to the circuit. The measured voltage will appear on the display of the instrument.
6. If the red test lead is connected to the negative (or lower voltage) side of the circuit, a minus sign will appear on the left-hand side of the display.
7. Disconnect power to the circuit before removing the test leads from the circuit.

FUNCTION	RANGE	RESOLUTION	ACCURACY
DCV	4V	1mV	±0.8% of reading, ±1 digit

Maximum Input Voltage: 4DCV
Input Impedance: 20MEG

Measuring AC Volts

Warning!

To avoid the risk of electrical shock, instrument damage and/or equipment damage, input voltages must not exceed 650 volts AC. Do not attempt to take any unknown voltage measurements that may be in excess of 650 volts AC.

1. Set function and range switch to the 650 ACV range.
2. Plug the red test lead into the "V/Ω" input jack and the black lead into the "COM" input jack of the instrument.
3. Disconnect the power from the circuit to be tested.
4. Connect the test leads to the circuit to be tested.
5. Reapply power to the circuit. The measured voltage will appear on the display of the instrument.
6. Disconnect power to the circuit before removing the test leads from the circuit.

FUNCTION	RANGE	RESOLUTION	ACCURACY
ACV	650V	1V	±1.2% of reading, ±4 digits

Maximum Input Voltage: 650ACV

Input Impedance: 20MEG

Measuring AC Current (amps)

Caution!

To avoid damage to the instrument, current sources having open circuit voltages greater than 600 volts DC or AC, must not be measured.

NOTE: When taking current measurements, the DL40 must be clamped around one conductor of the circuit or circuit element under test. Never clamp the DL40 around more than one conductor. This will result in erroneous readings.

1. Set function and range switch to the desired ACA range. If you do not know the value of the current to be measured, always start with the highest range and reduce the setting as required to obtain a satisfactory reading.
2. Disconnect the power from the circuit to be tested.
3. Clamp the jaws of the DL40 around one conductor of the circuit to be measured.
4. Reapply power to the circuit. The measured current will appear on the display of the instrument.

FUNCTION	RANGE	RESOLUTION	ACCURACY
ACA	40A	0.01A	±1.5% of reading, ±4 digits
	400A	0.1A	

Measuring Resistance (ohms, continuity)

Caution!

Turn off power and discharge all capacitors on circuit to be tested before attempting in-circuit resistance measurements. Failure to do so may end up in equipment and/or instrument damage.

The resistance measuring circuit applies a known value of constant current through the unknown resistance and then measures the voltage developed across it. Therefore, remove all power to the circuit under test when making resistance measurements. If any voltage is present in the test circuit, an erroneous reading will result. The DL40 may be damaged if voltage in excess of 600VAC is present.

NOTE: When measuring critical low ohm values, touch tips of test leads together and record the reading. Subtract this reading from any additional measurement to obtain the most accurate value.

1. Set the Function switch to the 4K " Ω " position.
2. Insert the black test lead into the "COM" input jack and the red test lead into the "V/ Ω " input jack.
3. Connect the test leads to the circuit to be measured.
4. The measured resistance will be displayed.

FUNCTION	RANGE	RESOLUTION	ACCURACY
Ω	4K	1 Ω	$\pm 1.0\%$ of reading, ± 1 digit

Audible Continuity Buzzer

1. Set the Function switch to the 4K Ω / \rightarrow position.
2. Insert the black test lead into the "COM" input jack and the red test lead into the "V/ Ω " input jack.
3. Connect the test leads to the circuit to be measured.
4. The DL40 will emit a continuous tone for resistances of less than 100 ohms.

Data Hold

1. Obtain a stable reading on any function or range of the DL40.
2. Press the "DATA HOLD" button (D-H will be displayed).
3. The reading will be frozen on the display until the "DATA HOLD" button is pressed again.

Peak Hold

1. Set the DL40 to the desired function and range and remove power from the circuit to be measured.
2. Attach the DL40 to the circuit to be measured and press the "PEAK HOLD" button. (PK-H will be displayed)
3. Reapply power to the circuit under test.
4. The DL40 will display the peak value measured.

Battery Replacement

1. Unplug the test leads from the instrument.
2. Remove the screw in the rear of the instrument and separate the rear housing and battery cover.
3. Replace the battery with the same type and size as the one removed.
4. Snap the front and rear housing back together and reinstall the screw.

Accessories

AB9	Battery, 9 volt
ATL50	Test lead set
AAC	Alligator clip adaptors
DPM2K	Phototach adaptor
HM1K	Humidity adaptor
TA1K	Temperature adaptor
AC41	Carrying case

Five Year Limited Warranty

This product is warranted to the purchaser against defects in material and workmanship for five years from the date of purchase.

WHAT IS COVERED: Repair parts and labor or replacement of parts or meter at the company's option. Transportation charges to the purchaser.

WHAT IS NOT COVERED: Transportation charges to the company. Damages from abuse or improper maintenance, see operating instructions. Any other expense, consequential damages, incidental damages, or incidental expenses, including damages to property. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

HOW TO OBTAIN WARRANTY PERFORMANCE: Attach your name, address, description of problem, phone number, and proof of date of purchase to the product. Package and return to:

Service Center, Universal Enterprises, Inc.
5500 SW Arctic Drive
Beaverton, Oregon 97005

IMPLIED WARRANTIES: Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to five years from date of purchase. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

To the extent any provision of this warranty is prohibited by federal and state law and cannot be preempted, it shall not be applicable. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.