Di-LOG
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operating manual

DL6401

1000A AC Clamp Meter

DL6402

1000A AC/DC Clamp Meter

Safety Notices

This manual contains information that must be followed for operating the meter safely and maintaining the meter in a safe operating condition. If this meter is not used in the manner specified, the protection provided may be impaired.

⚠ **Warning!** Warns of potential danger, refer to the instruction manual to avoid personal injury or damage to the meter.

⚠ **Caution!** Dangerous voltage. Danger of electrical shock

Continuous double or reinforced insulation complies with IEC536, class 11

CE Symbol of conformity, confirms conformity with relevant EU directives. The meter complies with EMC directives (89/336/EEC). Specifically standards EN 50081-1 and EN 50082-1 as well as the Low Voltage Directive (73/23/EEC) described in the standard EN 61010-1.

The meter has been designed in accordance with the safety regulations for electronic measuring instruments, EN 61010-1, IEC 61010

Voltages above 75V DC or 50V AC may constitute a serious shock hazard.

Before using the meter check for physical damage to the casing in particular around the connectors. If the case is damaged do not use the meter.

Check the test leads for damaged insulation or exposed metal. Check the leads for continuity. Replace damaged leads with identical model or specification before using the meter.

Where applicable use GS38 approved leads (not supplied) these are available from Di-Log. When using test leads keep fingers behind the finger guards.

Do not apply more than the rated voltage, as marked on the meter between the terminals or between any terminal and ground.

Before making a measurement ensure that the rotary switch is set to the appropriate range. Do not turn the rotary switch whilst making a measurement.

Use the appropriate terminals, function and range for your measurements. If the value to be measured is not known use the maximum measurement position and reduce the range step by step until a satisfactory reading is obtained.

Do not use or store the meter in an environment of high temperature, humidity, fumes, vapour, gaseous, inflammable and strong magnetic field. The performance and safety of the use may be compromised in such circumstances.

Disconnect circuit power and discharge all high voltage capacitors before testing resistance, continuity, diodes, capacitance or current.

Safety Notices

Before measuring current check the meters fuses and turn off power to the circuit before connecting the meter to the circuit.

Replace the battery as soon as the low battery indicator appears. If the battery is low the meter may give false readings.

Turn the meter power off when not in use,. Remove the battery if the meter is in use for a long period. Constantly check the battery as it may have leaked. A leaking battery will damage the meter.

The meter may only be opened by a qualified service technician for calibration and repair.

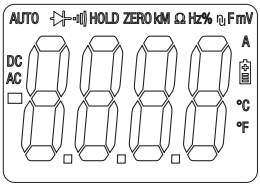
Function	Maximum Input
A AC/DC	1000A
V DC, V AC	600V DC/AC
Resistance, Diode, Continuity, Capacitance, Frequency, Duty Cycle, Test (DL6402 only)	250V DC/AC
Temperature °C / °F	60V DC / 24V AC

Instrument Layout

Controls and Connections

1. Current clamp
2. Clamp trigger
3. Backlight button
4. Mode select button
5. Max Hold button
6. LCD display
7. COM input terminal
8. Rotary Function switch
9. Data Hold button
10. V Ω •))) ⊣ terminal
11. Battery compartment on rear

Display



AC DC – AC (alternating current) and DC (direct current)

— Minus sign

8.8.8.8 – 4000 count (0 to 3999), DL6401 (0 to 1999) measurement reading

AUTO – AutoRange mode

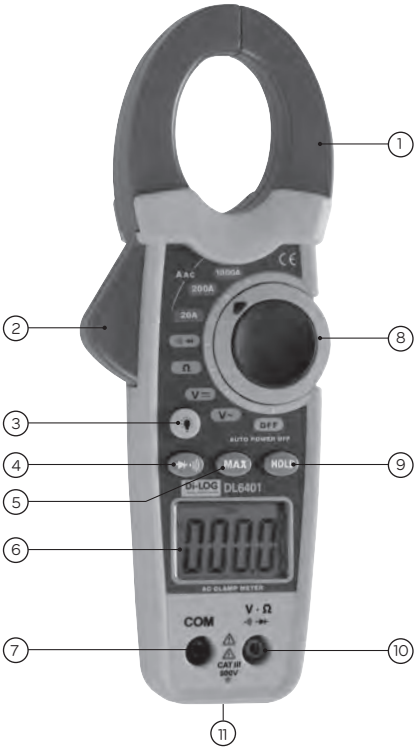
⊣ Diode test mode

•))) Audible Continuity

HOLD – Data Hold mode

°C, °F, µ, m, V, A, K, M, Ω
Units of measure list

Instrument Layout



Specifications

Function	Range & Resolution	Accuracy (% of Reading)
DC Current (DL6402 only)	40.00A	± (2.8% + 10 digits)
	400.0A	± (2.8% + 5 digits)
	1000A	± (3.0% + 5 digits)
AC Current	40.00A	± (3.0% + 10 digits)
	400.0A	± (3.0% + 5 digits)
	1000A	± (3.0% + 5 digits
DC Voltage	400.0mV	± (0.8% + 3 digits)
	4.000V	± (1.5% + 3 digits)
	40.00V	
	400.0V	
	600V	± (2.0% + 3 digits)
AC Voltage	400.0mV	± (0.8% + 20 digits)
	4.000V	± (1.8% + 5 digits)
	40.00V	
	400.0V	
	600V	± (2.5% + 5 digits)
Resistance (DL6401 20mΩ)	400.0Ω	± (1.0% + 4 digits)
	4.000KΩ	± (1.5% + 2 digits)
	40.00KΩ	
	400.0KΩ	
	4.000MΩ	± (2.5% + 3 digits)
	40.00MΩ	± (3.5% + 5 digits)

Specifications

Function	Range & Resolution	Accuracy (% of Reading)
Capacitance (DL6402)	40.00nF	± (5.0% reading + 100 digits)
	400.0nF	± (3.0% reading + 5 digits)
	4.000µF	± (3.5% reading + 5 digits)
	40.00µF	
	100.0µF	± (5.0% reading + 5 digits)
Frequency (DL6402)	5.000Hz	± (1.5% reading +5 digits)
	50.00HZ	± (1.2% reading + 2 digits) Sensitivity: 10Vrms min.
	500.0Hz	
	5.000kHz	
	50.00kHz	
	100.0kHz	
Duty Cycle (DL6402)	0.5 to 99%	± (1.2% reading + 2 digits)
	Pulse width: 100µs – 100ms, Frequency: 5.000Hz~	
Temp (type-K) (probe accuracy not included) (DL6402)	-20 to 100.0°C	± (3.0% reading + 5°C)
	-4 to 1832°F	± (3.0% reading + 7°F)

Note: No Autoranging on 400mV AC Voltage Range

Specifications

Clamp Size	30mm Opening Approx.
Diode Test	Test Current of 0.3mA typical; Open circuit voltage 1.5V DC
Continuity Check	Threshold <100Ω: Test current <1mA
Low Battery Indication	"  " is displayed
Overrange Indication	"OL" is displayed
Measurements Rate	2 per second, nominal
Input Impedance	7.8MΩ (VDC and VAC)
Display	4000 count LCD
AC Current	50/60Hz (AAC)
AC Voltage Bandwidth	50/60Hz (VAC)
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-30°C to 60°C (-22°F to 140°F)
Relative Humidity	90% (0°C to 30°C); 75% (30°C to 40°C); 45% (40°C to 50°C);
Altitude	Operating: 3000m; Storage 10,000m
Over Voltage	Category III 600V
Battery	One DC 9V IEC 6F22. 16404. Battery
Auto Power Off	Approx. 35 minutes
Dimensions	229 x 80 x 49mm
Weight	303g

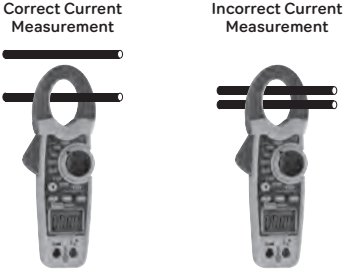
⚠ **WARNING: Read and understand all warning and precaution statements listed in the safety section of this operation manual prior to using this meter. Set the function select switch to the OFF position when the meter is not in use.**

DC/AC Current Measurements

DC/AC Current Measurements

⚠ **WARNING: Ensure that the test leads are disconnected from the meter before making current clamp measurements.**

1. Set the Function switch to the 1000A or 400A or 40A range. If the range of the measured is not known, select the higher range first then move to the lower range if necessary.
2. Select AC or DC with the MODE button.
3. Press the trigger to open jaw. Fully enclose one conductor to be measured.
4. The clamp meter LCD will display the reading



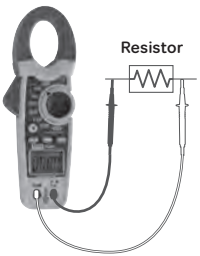
DC/AC Voltage Measurements

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the positive **V** terminal.
2. Set the function switch to the **V** position.
3. Select AC or DC with the **MODE** button.
4. Connect the test leads in parallel to the circuit under test.
5. Read the voltage measurement on the LCD display.

Resistance & Continuity Measurements (DL6402)

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the positive terminal.
2. Set the function switch to the position.
3. Use the multifunction MODE button to select resistance.
4. Connect the test probe tips across the circuit or component under test. It is best to disconnect one side of the device under test so the rest of the circuit will not interfere with the resistance reading.
5. For Resistance tests, read the resistance on the LCD display.
6. For Continuity tests, if the resistance is < 100Ω, a tone will sound.

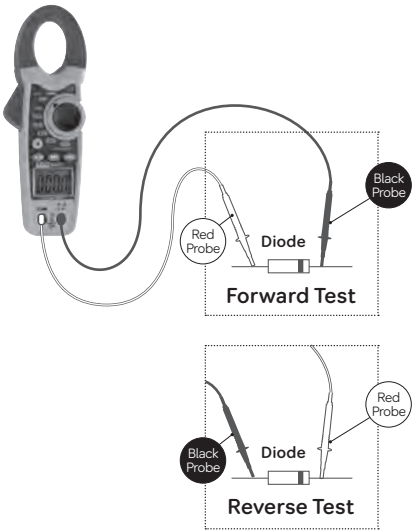
Resistance Measurement:



Continuity Measurement:
Buzzer Sounds

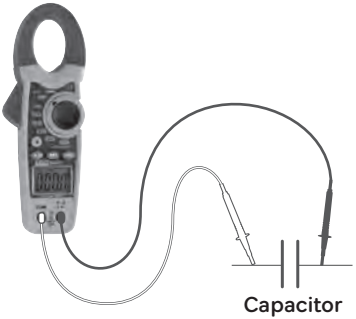
Diode Measurements (DL6402)

1. Insert the black test lead banana plug into the negative **COM** terminal and the red test lead banana plug into the positive **diode** terminal.
2. Turn the rotary switch to the ⊣◀)) Ω position.
3. Press the **MODE** button until "⊣" appears in the display.
4. Connect the test probes to the diode under test. Forward voltage will indicate 0.4V to 0.7V. Reverse voltage will indicate "**OL**". Shorted devices will indicate near 0mV and an open device will indicate "**OL**" in both polarities.



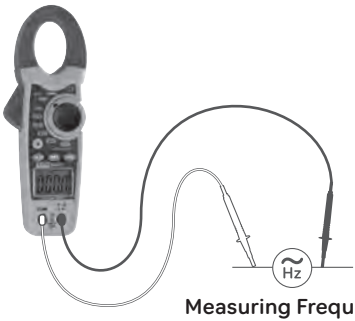
⚠ **WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any capacitance measurements. Remove the batteries and unplug the line cords.**

1. Set the rotary function switch to the cap position.
2. Insert the black test lead banana plug into the negative (**COM**) terminal.
3. Connect the test leads to the capacitor to be tested.
4. Read the capacitance value in the display.



Frequency or % duty cycle measurements

1. Set the function switch to the V position.
2. Insert the black lead banana plug into the negative **COM** terminal and the red test lead banana plug into the positive **V** terminal.
3. Select Hz or % duty with the **Hz / %** button.
4. Connect the test probe tips to the circuit under test.
5. Read the frequency on the display.

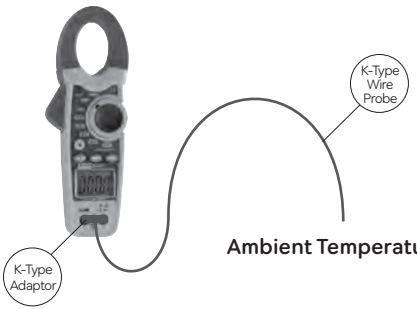


Measuring Frequency on AC Supply

⚠ **WARNING: To avoid electric shock, disconnect both test probes from any source of voltage before making a temperature measurement.**

1. Set the function switch to **TEMP**.
2. Insert the Temperature Probe into the negative (**COM**) and the **V** terminals, making sure to observe the correct polarity.
3. Select °C or °F with the **MODE** button.
4. Connect the Temperature Probe head to the part whose temperature you wish to measure. Keep the probe touching the part under test until the reading stabilizes (about 30 seconds).
5. Read the temperature in the display. The digital reading will indicate the proper decimal point and value.

⚠ **WARNING: To avoid electric shock, be sure the thermocouple has been removed before changing to another measurement function.**



DATA HOLD AND BACKLIGHT

To freeze the LCD meter reading, press the data hold button. The data hold button is located on the left side of the meter (top button). While data hold is active, the HOLD display icon appears on the LCD. Press the data hold button again to return to normal operation.

Note: The HOLD feature will activate when the Backlight is turned on. Press the HOLD key again to exit Hold.

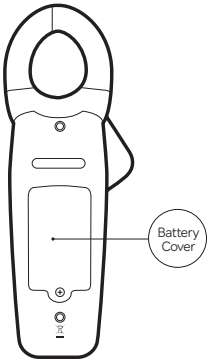
The backlight function illuminates the display and is used when the ambient light is to low to permit viewing of the displayed readings. Press the HOLD button for one second to turn the backlight on and press the button a second time to turn the backlight off.

MANUAL RANGING

The meter turns on in the autoranging mode. Press the Range button to go to manual ranging. Each press of the range button will step to the next range as indicated by the units and decimal point location. Press and hold the Range button for two seconds to return to autoranging. Manual ranging does not function in the AC Current, Diode and Continuity check functions.

BATTERY REPLACEMENT

1. Remove the one rear Phillips head screw
2. Open the battery compartment
3. Replace the Requires one “9V” battery (NEDA1604, 6F22 006P)
4. Re-assemble the meter



Version DL6401

24 Month Warranty

Di-Log instruments are subject to stringent quality controls. If in the course of normal daily use a fault occurs we will provide a 24 month warranty (only valid with invoice).

Faults in manufacture and materials defect will be rectified by us free of charge, provided the instrument has not been tampered with and returned to us unopened.

Damage due to dropping abuse or misuse is not covered by the warranty.

Outside the warranty period we offer a full repair and re-calibration service.

Maintenance

WARNING Do not attempt to repair or service your meter unless you are qualified to do so and have the relevant calibration, performance test and service information. To avoid electrical shock or damage to the meter do not get water inside the case.

Periodically wipe the case with a damp cloth and mild detergent. Do not use chemical solvent.

Clean the input terminals with cotton bud, as dirt or moisture in the terminals can affect readings.

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