



AC75B

AC Digital Clamp Multimeter Users Manual

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AC75B Clamp-on Multimeter

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




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Safety Information

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

- To avoid possible electric shock or personal injury, follow these guidelines:
- Do not use the meter if it is damaged. Before you use the meter, inspect the case. Look for cracks or missing plastic. Pay particular attention to the insulation surrounding the connectors.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity.
- Replace damaged test leads before you use the meter.
- If this product is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Do not use the meter if it operates abnormally. Protection may be impaired. When in doubt, have the meter serviced.
- Do not operate the meter around explosive gas, vapor, or dust.
- Do not apply more than the rated voltage, as marked on the meter, between terminals or between any terminal and earth ground.
- Before use, verify the meter's operation by measuring a known voltage.
- When measuring current, turn off circuit power before connecting the meter in the circuit. Remember to place the meter in series with the circuit.
- Do not attempt to repair this meter. There are no user serviceable parts.
- Use caution when working above 30 V ac rms, 42 V peak, or 60 V dc. Such voltages pose a shock hazard.
- When using the probes, keep your fingers behind the finger guards on the probes.
- Connect the common test lead before you connect the live test lead. When you disconnect test leads, disconnect the live test lead first.
- Remove test leads from the meter before you open the battery door.
- Do not operate the meter with the battery door removed or loosened.
- To avoid false readings, which could lead to possible electric shock or personal injury, replace the batteries as soon as the low battery indicator (E3) appears.
- Only use a 9 Volt battery, properly installed in the meter case, to power the meter.
- To avoid the potential for fire or electrical shock, do not connect the thermocouple to electrically live circuits.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.

Symbols Used in this Manual

	Battery		Refer to the manual
	Double insulated		Dangerous Voltage
	Direct Current		Earth Ground
	Alternating Current		Audible tone
	Conforms to relevant Australian standards.		Canadian Standards Association (Canadian and US)
	Complies with EU directives		Application around and removal from HAZARDOUS LIVE conductors is permitted.

Introduction

The AC75B digital clamp-on multimeter, is a fully featured meter that also measures temperature using a Type K probe (included). The AC75B has full Category safety ratings and is CAT III, 600 V.

Making Measurements

Measurement Functions

- AC and DC Volts (\tilde{V}/\bar{V}) See Figure -4-
- Resistance (Ω) See Figure -5-
- Diode/Continuity ($\rightarrow|/|||$) See Figure -6-
- DC Current (DC μ A) See Figure -7-
- Capacitance ($\text{--}|\text{--}$) See Figure -8-
- Temperature ($^{\circ}\text{C}/^{\circ}\text{F}$) See Figure -9-
- AC Current (\tilde{A}) See Figure -11-

Additional Features

Auto Power Off/Auto Power Off Disable See Figures -2- and -3-

The meter will automatically shut itself off after approximately 10 minutes after power is turned on, or no activity has occurred with the meter. The meter will beep when it turns off. Turn the rotary dial to reactivate the meter.

The Auto Power Off feature can be disabled to keep the meter from going to sleep. Press the **BACKLIGHT** button and then switch the rotary knob to power on the meter.

Backlight See Figure -12-

The AC75B backlight illuminates the entire display for easy measurement viewing in dark work environments. The backlight is activated for 60 seconds once the button is pressed.

HOLD Measurements See Figure -10-

The **HOLD** button allows the meter to capture and continuously display a measurement reading. To use the **HOLD** feature, make a measurement, when the reading has stabilized, press the **HOLD** button. The measurement value will be captured on the display. Press the **HOLD** button again to release the value.

Product Maintenance

Maintenance


Do not attempt to repair this meter. It contains no user serviceable parts. Repair or servicing should only be performed by qualified personnel.

Cleaning

To clean the meter, periodically wipe the case with a soft moistened cloth. To avoid damage to the plastic components do not use benzene, alcohol, acetone, ether, paint thinner, lacquer thinner, ketone or other solvents to clean the meter.

Troubleshooting

If the meter appears to operate improperly, check the following items first.

1. Review the operating instructions to ensure the meter is being used properly.
2. Make sure the battery is in good condition. The low battery symbol  appears when the battery falls below the level where accuracy is guaranteed. Replace a low battery immediately.

Battery Replacement

To replace the battery

1. Turn the meter off and remove the test leads.
2. Loosen the screw and remove the battery door.
3. Replace the battery using an alkaline 9 V battery. See General Specifications for detailed battery specifications.
4. Replace the battery cover and tighten the screw. Recycle the battery using approved methods.

WARNING

To avoid electrical, shock remove the test leads from both the meter and the test circuit before accessing the battery or the fuses.

Specifications

General Specifications


Display: 3 ¾ digit large scale liquid crystal display (LCD)

Display Count: 4000 counts

Measuring Rate: 1.5 times per second

Overrange Display: OL is displayed for Ω functions. Actual value is shown for A, V, and temperature functions.

Automatic Power Off Time: Approximately 10 minutes after power on

Low battery indication: The  symbol is displayed when the battery voltage drops below the operating level for accurate results.

Power: Single standard 9 V battery, NEDA160A.

Battery Life: 200 hours with an alkaline 9 V battery.

Environmental Specifications

Indoor Use

Calibration: One year calibration cycle

Operating Temperature:

0 °C to 30 °C at ≥80 % R.H.

30 °C to 40 °C at ≥75 % R.H.

40 °C to 50 °C at ≥45 % R.H.

Storage Temperature: -20 °C to 60 °C at 0 to 80 % R.H. (battery removed)



Overvoltage Category:

IEC 61010-1 CAT III - 600 V, CAT II 1000 V, Pollution Degree 2

EN61010-2-032

CAN/CSA C22.2 No. 1010.1-92

CAN/CSA C22.2 No. 1010.1B-92

CAN/CSA C22.2 No. 1010.2.032-96

Altitude: ≤2000 M (6562 Feet)

Conductor Size: ≤ 32 mm diameter (1.25 in)

EMC: EN61326-1.

Shock Vibration: Sinusoidal vibration per MIL-PRF-28800F (5 to 55 Hz, 3 g maximum)

Drop Protection: 4 foot drop to hardwood on concrete floor

Electrical Specifications

Accuracy: ±(% reading + number of digits) at 23 °C ±5 °C at <80 % R.H.

Temperature Coefficient: Add 0.2 x (Specified Accuracy)/°C, <.18 °C, >28 °C.

DC/AC VOLTS

Range	DC Accuracy	AC Accuracy
4.000 V	$\pm(0.9 \% + 2 \text{ dgt})$	$\pm(1.5 \% + 5 \text{ dgt})$ 50 Hz to 500 Hz
40.00 V		
400.0 V		
1000 V dc/750 V ac		

Overvoltage Protection: DC 1000 V or AC 750 V rms

Input Impedance: 10 M Ω //less than 100 pF

CMRR/NMRR: (Common Mode Rejection Ratio/Normal Mode Rejection Ratio)

V ac

CMRR > 60 dB at DC, 50 Hz/60 Hz

V dc

CMRR > 100 dB at DC, 50 Hz/60 Hz

NMRR > 50 dB at DC, 50 Hz/60 Hz

AC Conversion Type: Average sensing rms indication.

Resistance

Range	Accuracy
² 400.0 Ω	$\pm(1.0 \% + 2 \text{ dgt})$
4.000 k Ω	$\pm(0.7 \% + 2 \text{ dgt})$
40.00 k Ω	
400.0 k Ω	
4.000 M Ω	$\pm(1.0 \% + 2 \text{ dgt})$
¹ 40.00 M Ω	$\pm(1.5 \% + 2 \text{ dgt})$

Overload Protection: 1000 V dc/750 V ac

Open Circuit Voltage: -1.3 V approx.

¹<100 dgt rolling

²10 dgt rolling

Diode Check and Continuity

Resolution	Accuracy
10 mV	$\pm(1.5 \% + 5 \text{ dgt})$ From 0.4 V to 0.8 V

Max Test Current: 1.5 mA

Max Open Current: 3 V

Overload Protection: 1000 V dc/750 V ac

Continuity: Built-in buzzer sounds when resistance is less than approximately 100 Ω . Response time is approximately 100 msec

DC μA

Range	Accuracy
400.0 μA	$\pm(1.0 \% + 2 \text{ dgt})$
4000 μA	

Voltage Burden: < 5 mV/ μA

Overload Protection: 1000 V dc/750 V ac

Resolution: 100 nA

Capacitance

Range	Accuracy
4.000 nF	$\pm(3.0 \% + 20 \text{ dgt})$
40.00 nF	
400.0 nF	
4.000 μF	
40.00 μF	
400.0 μF	
¹ 4.000 mF	

Overload Protection: 1000 V dc/750 V ac
¹< 50 dgt fluctuating

AC Current

Function	Range	AC Accuracy
A~ (50 to 60 Hz)	0.0 to 399.9 A	$\pm(1.9 \% + 5 \text{ digits})$
	400.0 to 600.0 A*	
*0.0 to 500.0 A Continuous 501 A to 600.0 A 10 minutes maximum followed by 10 minutes cooling period.		

Overload Protection: 1000 V dc/750 V ac

AC Conversion Type: Average sensing rms display

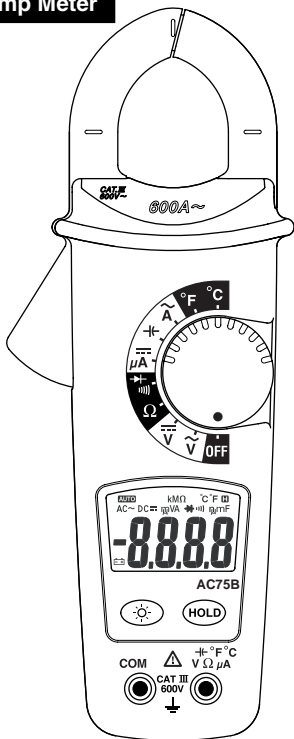
Position Error: $\pm 1.5 \%$ of reading

Temperature

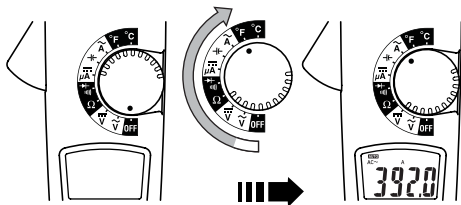
Function	Range	Accuracy
$^{\circ}\text{C}$	-40 $^{\circ}\text{C}$ to 0.1 $^{\circ}\text{C}$	1 % \pm 4 $^{\circ}\text{C}$
	0 $^{\circ}\text{C}$ to 400.0 $^{\circ}\text{C}$	1 % \pm 3 $^{\circ}\text{C}$
$^{\circ}\text{F}$	-40 $^{\circ}\text{F}$ to 32 $^{\circ}\text{F}$	1 % \pm 8 $^{\circ}\text{F}$
	32 $^{\circ}\text{F}$ to 750 $^{\circ}\text{F}$	1 % \pm 6 $^{\circ}\text{F}$
	750 $^{\circ}\text{F}$ to 1000 $^{\circ}\text{F}$	1 % \pm 8 $^{\circ}\text{F}$

Overload Protection: 1000 V dc/750 V ac

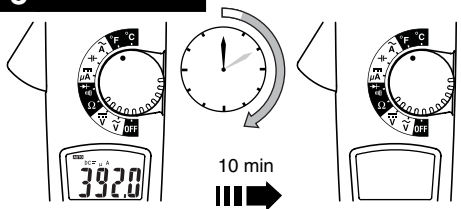
1 Clamp Meter



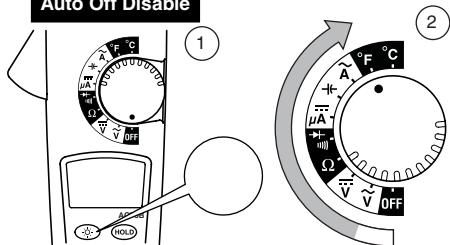
2 Off/On

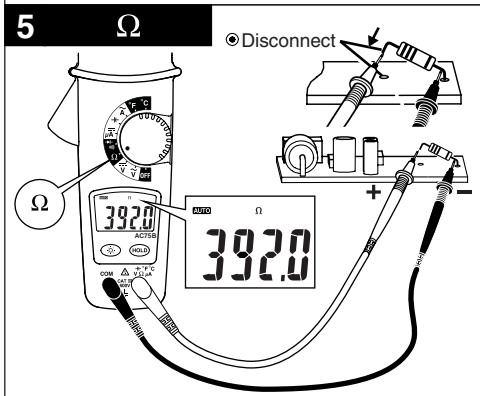
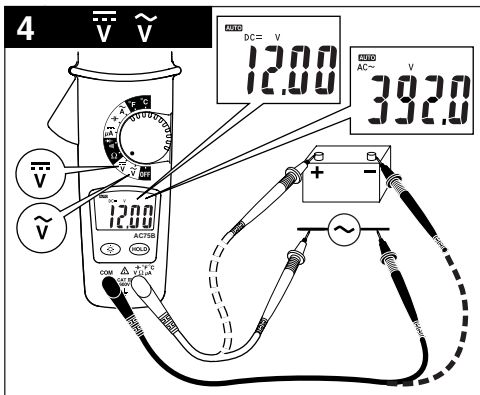


3 Auto Power Off

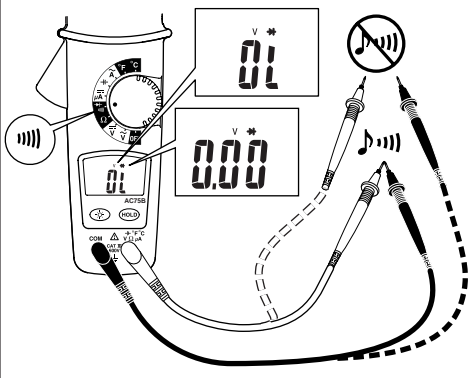
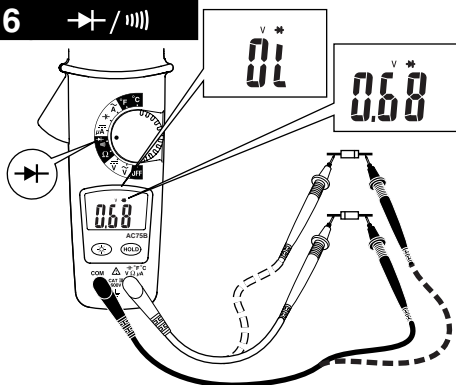


Auto Off Disable

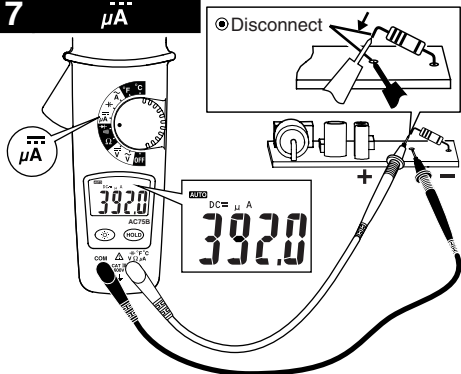




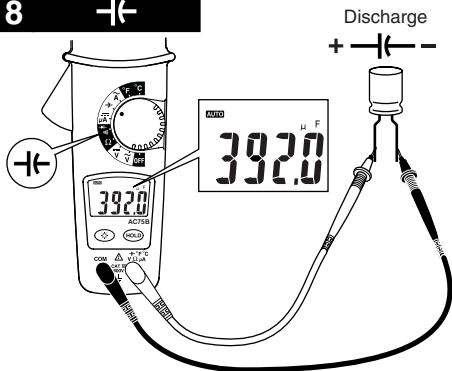
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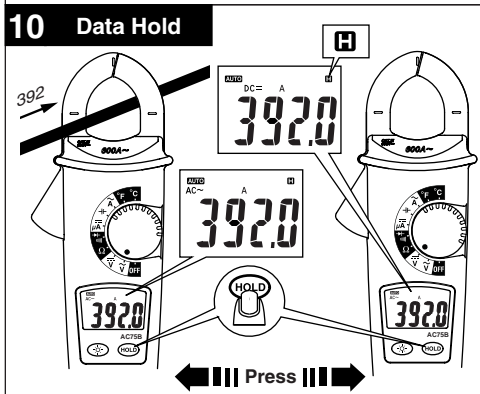
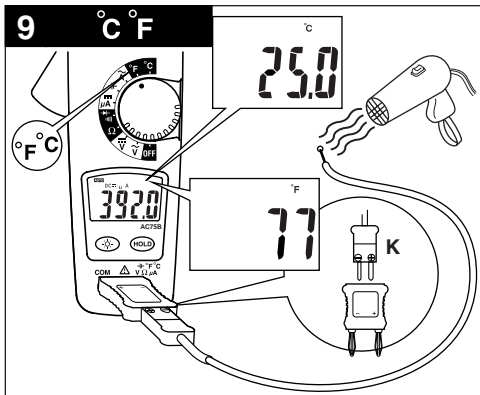


7

 μA 

8

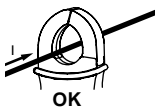
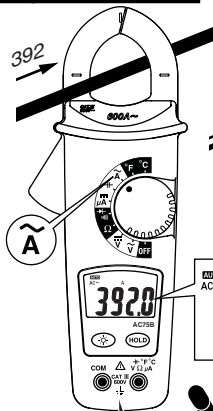
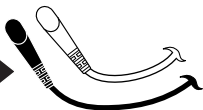
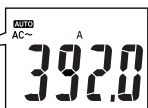
 μF 



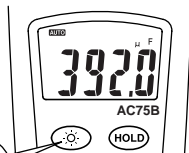
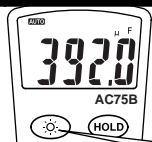
11

A

392


 $I + (-I) = 0$


12 Back Light



Press