



DIGITAL MULTIMETER

AX-582N



OPERATION MANUAL



1. Summearize

The instrument is a steady performance, battery-driven digital multimeter. It uses the LCD with 30 mm-high figure to make the reading clear. The function of 15 sec. Backlight displaying and overload protection make operation more convenient.

The instrument has the function of measuring DCV, ACV, DCA, ACA, resistance, capacitance, test, temperature and frequency, anddiode, triode and continuity test. The instrument takes dual-integral A/D converter as key point, is an excellent tool.

2. Safety Note

This series meter's design meets the article of IEC1010 (seciurity stan dard enected by IEC). Please read the following before operation.

1. Do not input a limited voltage higher than DC 1000V or AC 750V when measuring ranges.
2. Voltage less than 36V is a safety voltage. When measuring voltage higher than DC 36V, AC 25V, check the connection and insulation of test leads to avoid electric shock.
3. Be sure to keep the test leads off the testing points when converting function and range.
4. Select correct function and range to avoid fault operation.
5. When measuring current, do not input current over 20A.
6. Safety symbols:



Exists high voltage



GND



Dual insulation



Must refer to manual



Low battery



3. Characteristic

1. General

- 1.1. Displaying: LCD displaying
- 1.2. Max. indication: 1999 (3 ½), auto polarity indication
- 1.3. Measuring method: dual slope A/D transfer
- 1.4. Sampling rate: approx. 3 times/sec
- 1.5. Over range indication: MSD display “1” or “-1”
- 1.6. Low battery indication:  symbol displays
- 1.7. Operation: (0-40) °C, relative humidity <80%
- 1.8. Power: one 9V battery (NEDA 1604/6F22 or equivalent)
- 1.9. Size: 189 x 97 x 35 mm (length x width x xheight)
- 1.10. eight: approx. 375 g (including a battery)
- 1.11. Accessories: test leads, user manual, holster, gift box.
- 1.12. Testing accessories: a pair of alligator clip. A test accessory for Triode, banana-type hot thermocouple.

2. Technical Characteristic

2.1. Accuracy: ± (a% x rdg + d) at (23 ± 5) °C, R.H. <75%, one year guaranteed from the production data.

2.2. Technical Data:

2.2.1. DC Volt (DCV)

Range	Accuracy	Resolution
200 m V	± (0,5 % + 3)	100 µV
2V		1 mV
20V		10 mV
200V		100 mV



1000V	$\pm (1,0 \% + 5)$	1 V
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Input resistance: 10M Ω

Overload protection: 200mV range: 250V DC or AC peak value.

Other range: 1000V DC or AC peak value

2.2.2. AC Volt (ACV)

Range	Accuracy	Resolution
2 V	$\pm (0,8 \% + 5)$	1 mV
20 V		10 mV
200 V		100 mV
750 V	$\pm (1,2 \% + 5)$	1 V

Input resistance: 10M Ω

Overload protection: 100V DC or AC peak value.

Frequency response: less than 200V range: (40~400) Hz

750V range: (40~200) Hz

Displaying: sine wave rms (mean value response).

2.2.3. DC Current (DCA)

Range	Accuracy	Resolution
20 μ A	$\pm (0,8 \% + 4)$	0,01 μ A
200 μ A		0,1 μ A
20 mA		10 μ A
200 mA	$\pm (1,2 \% + 4)$	100 μ A
2 A	$\pm (1,5 \% + 5)$	1 mA
20 A	$\pm (2,0 \% + 5)$	10 mA

Max. input volt drop: 200mV

Max. input current: 20A (the test time should be in 10 seconds)



Overload protection: 2A/250V quick-action fuse, 20A un-fused

2.2.4. AC Current (ACA)

Range	Accuracy	Resolution
200 mA	± (2,0 % + 5)	100 µA
2 A	± (3,0 % + 5)	1 mA
20 A	± (3,0 % + 10)	10 mA

Max. measuring volt drop: 200mV

Max. input current: 20A (the test time should be in 10 seconds)

Overload protection: 2A/250 V quick-action fuse, 20A un-fused

Frequency response: (40~200) Hz

Display: sine wave RMS (mean value response)

2.2.5. Resistance (Ω)

Range	Accuracy	Resolution
200 Ω	± (0,8 % + 5)	0,1 Ω
2 kΩ	± (0,8 % + 3)	1 Ω
20 kΩ		10 Ω
200 kΩ		100 Ω
2 MΩ		1 kΩ
200 MΩ	± [5,0 % (RDG - 10) + 20]	100 kΩ

Open Voltage: less than 3V

Overload protection: 250V DC and AC peak value

NOTE:

A. At 200Ω range, should make the test leads short, and measure the wire resistance, then subtract from the actual measuring.



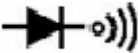
B. At 200M Ω range, should make the test leads short, the meter will display 1.0M Ω . It's normal and has no effect on the accuracy. Should be subtracted from actual measuring.

2.2.6. Capacitance (C)

Range	Accuracy	Resolution
20 nF	$\pm (2.5 \% + 20)$	10 pF
2 μ F		1 nF
200 μ F		100nF

Overload protection: 36V DC or AC peak value

2.2.7. Diode and continuity test

Range	Displaying	Test condition
	Positive voltage drop of diode	The positive DC current is approx. 1mA, negative voltage is approx 3V
	Buzzer sounds, the resistance is less than $< (70 \pm 20) \Omega$	Open voltage is approx. 3V

Overload protection: 250V DC or AC peak value

Warning: DO NOT input any voltage at this range for safety!

2.2.8. Transistor hFE Data Test

Range	Displaying	Test Conditon
hFE NPN or PNP	0 ~1000	Basic current is approx. 10uA, VCE is abort 3V

2.2.9. Hot Wire Test

Range	Displaying	Alarming Way	Condition
TEST	000 or 1	Sound, light	Standard AC hot

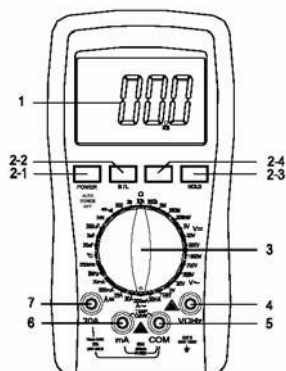


Overload protection: DC 500V or AC peak value

CAUTION: Be careful when you operate it

4. Operation

4.1. Panel description (See the fig)



1. LCD: display the measuring value

2-1. POWER switch: turn on/off the power.

2-2. B/L switch: turn on/off the back light.

2-3. HOLD key: press it, the max of presently measure value is held on LCD and "HOLD" symbol displays. Press it again. "HOLD" symbol disappears, and the meter is exited the holding mode.

2-4. The light of hot wire testing.

3. Range knob: to select measuring function and range.

4. Voltage, resistance and frequency COM

5. GND, the anode COM of test accessory.

6. 2A current test COM, the cathode COM of test accessory

7. COM for measuring current 20A

4.2. DCV measurement

1. Apply the black test lead to "COM" terminal and read the red one to "V/ Ω " terminal

2. Set the knob to a proper DCV range, and connect the leads crossly to the electric circuit under test. LCD displays polarity and voltage under test connected by the red test lead.

NOTE:

1. Firstly users should set the knob to the highest range, if users had no idea about the range of voltage under test, and then select the proper range based on displaying value.
2. If LCD display “1”, it means meter is over the max. Value of range, thus should set the knob to a higher range.
3. Do not input a voltage over DC 1000V
4. Be carefully while measuring a high voltage. DO NOT touch the circuit.

4.3. ACV measurement

1. Apply the black test lead to “COM” terminal and the red one to “V/ Ω ” terminal.
2. Set the knob to a proper ACV range, and then connect the leads crossly to the electric circuit under test.

NOTE:

1. Firstly users should set the knob to the highest range, if users had no idea about the range of voltage under test, and then select the proper range based on displaying value.
2. If LCD displays “1”, it means meter is over the max. value of range, thus should set the knob to a higher range.
3. Do not input a voltage over 750Vrms
4. Be carefully while measuring a high voltage. DO NOT touch the circuit.

4.4. DCA measurement

1. Apply the black test lead to “COM” terminal and the red one to “mA” terminal (the Max. 2A) or to “20A” (the Max. 20A).
2. Set the knob to a proper DCA range, and connect the leads crossly to the electric circuit under test; LCD displays polarity and current under test connected by the red test lead.

NOTE:

1. Firstly users should set the knob to the highest range, if users had no ide about the range of current under test, and then select the proper range based on displaying value.



2. If the LCD displays “1”, it means the current is over range. Now you need to set the knob to the higher.

3. Max. input current is 2A or 20A (subject to where the red test lead apply to), too large current will blow the fuse. Too large continuous current will heat the circuit, affect the accuracy or damage the meter while measuring at the range of 20A, because there is no protection.

4.5. ACA measurement

1. Apply the black test lead to “COM” terminal and the red one to “mA” terminal (the Max. 2A) or to “20A”(the Max. 20A)

2. Set the knob to a proper ACA range, and connect the leads crossly to the electric circuit under test.

NOTE:

1. Firstly users should set knob to the highest range, if users had no idea about the range of current under test, and then select the proper range based on displaying value.

2. If the LCD displays “1”, it means the current is over range. Now you need to set the knob to the higher.

3. Max. input current is 2A or 20A (subject to where the red test lead apply to), too large current will blow the fuse. Be sure the test is less than 10 seconds. Please keep the leads off the circuit while switching the function and range knob. Too large continuous current will heat the circuit, affect the accuracy or damage the meter while measuring at the range of 20A, because there is no protection.

4.6. Resistance measurement

1. Apply the black test lead to “COM” terminal and the red one to “V/ Ω ” terminal

2. Set the knob to a proper resistance range, and connect the leads crossly with the resistor under tested.

NOTE:

1. The LCD display “1” while the resistance is over the selected range. When measuring value is over 1M Ω , the reading will take a few seconds to be stable. It's normal for high resistance measuring.

2. When input terminal is in open circuit, overload displays.

3. When measuring in line resistor, be sure that the power is off and all capacitors are released completely.

4. Do not input any voltage at resistance range.



4.7. Capacitance Measurement

1. Apply the knob to proper capacitance range, and insert the measuring accessories or test leads into “COM” and “mA” terminal. Note: “COM” terminal is for positive pole (+), “mA” terminal is (-)
2. Connect test leads with the two points of capacitor, be wary of polarity if necessary.

NOTE:

1. If the capacitance under tested is over the max. value of selected range LCD displays “1”, thus, should set the knob to a higher range.
2. When measuring at large capacitance range, if capacitor is crept badly or broken, LCD displays a value and it's unstable.
3. Release the capacitor completely before measuring.

4.8. Transistor hFE

1. Set the knob to hFE range. Inset the test leads to “COM” and “mA” Note: “COM” terminal is for positive pole (+), “mA” terminals is (-).
2. Verify the transistor under tested is NPN or PNP, insert emitter, base and collector to proper jack.

4.9. Diode and Continuity Test

1. Apply the black test lead to “COM” terminal and the red one to “V/ Ω ” terminal (the polarity of red lead is “+”).
2. Set the knob to  range, connect test Leads with the diode dunder tested, the red test connect to diode positive polarity, the reading is approx. value of diode forward volt drop.
3. Apply test leads to two points of tested circuit, if the inner buzzer sounds, the resistance is less than $(70 \pm 20) \Omega$

4.10. Hot Wire Test

1. Pull out the black test lead from “COM” jack, and set the red one to “V/ Ω ” jack.
2. Set the knob to TEST range, and set the red test lead to the tested circuit.
3. If LCD displays “1” and the light and sound alarming, it means the circuit of the red test lead tested is hot wire, if there is no any response, it means it is neutral wire.



NOTE:

1. The function is only for testing AC standard live wire (AC 110V-AC380V)
2. Be careful to operate at this range.

4.11. Data Hold

Press the Hold switch, the measured value is held on LCD, press it again and the function is cancelled.

4.12. Auto Power Off

The meter will be into sleeping mode when it works for (20±10) minutes. Press “POWER” key twice to restart the power.

4.13. Backlight

Press “B/L” key to turn on the backlight, and it will turn off after 15 seconds.

NOTE:

When turning on backlight, the working current will be enlarged, it leads to shorten battery usage and enlarge accuracy of some functions.

5. Maintenance

Do not try to modify the electric circuit.

5.1. Keep the meter away from water, dust and shock.

5.2. Do not store and operate the meter under the condition of high temperature, high humidity, combustible, explosive and strong magnetic place.

5.3. Wipe the case with a damp cloth and detergent, do not use abrasives and alcohol.

5.4. If do not operate for a long time, should take out the battery to avoid leakage.

5.4.1. When “” signal displays, should replace the battery following the steps.

5.4.1.1. Unlock the button and remove the battery case.

5.4.1.2. Take out the old battery and replace the new one. It's better to use alkaline battery for longer life.

5.4.1.3. Fit on the battery case and lock the button.

5.4.2. Fuse change: When replacing fuse, please change another same type and specification fuse.



6. If the meter does not work properly, check the meter as following:

Conditions	Way to solve
No Reading on LCD	• Turn on the power • Set the HOLD key to a correct mode • Replace battery
Signal appears „  ”	• Replace battery
No current or temperature input	• Replace fuse
Big error Value	• Replace battery

- The specifications are subject to change without notice.
- The content of this manual is regarded as correct, error or omits PL> contact with factory.
- We hereby will not be responsible for the accident and damage caused by improper operation
- The function stated for this User Manual cannot be the Reason of special usage.

