



User manual

AX-576N Digital Multimeter





Introduction

Congratulations on your purchase of AX-576N digital multimeter, which has been designed according to IEC-61010-2-032 concerning electronic measuring instruments with CAT III 1000V& CAT IV 600V and pollution 2. With the excellent reliability brings high efficiency and convenience to your measurement, and ensure AX-576N to be an ideal tool on field working, laboratory, factory, hobbyist, as well as household applications.

To fully utilize this range multimeters, please keep this manual for reference carefully.

Features

- Stable performance, with comfortable hand grip and solid housing
- Max.6000 count display with LCD size: 60x36.5mm
- Full function protection, with stand max.1000V over-voltage impact, as well as over-voltage and over-current alert.
- Large capacitance extension range with fast response
- Audio visual alert featured NCV and LIVE test
- Max ACV/DCV up to 1000V and ACA/DCA up to 20A
- Backlight and inbuilt flashlight for visibility in any conditions

Safety

Cautions

- Before operating measurement, the meter must be warm-up for 30 seconds
- Inspect the condition of the test leads and the meter itself for any damage before operating the meter.
- The multimeter can be only be used with the equipped test leads to meet the requirements of safety standards. If the test leads need to be replaced, it must be the same electrical specification of the original test leads.
- If multimeter is operated in a noisy conditions, the readings of meter might be unstable, or even with the large errors due to interference.
- Always remove the test leads before replacing the battery or fuses.
- Use great care when making measurements if the voltages are greater 30VAC RMS or 60V DC, these voltages are considered a shock hazard.
- To avoid damages to the meter, do not exceed the maximum limits of the input values shown in the specification.
- Always discharge capacitors and remove power from the device under test before performing Diode, Resistance or Continuity tests.
- Once "⚡" appears in LCD, to replace the battery for accurate readings.

Safety Symbols

⚠ This symbol indicates that the operator must refer to an explanation in the Operating Instruction for further information.

⏏ Earth ground

□ Double insulation

⚡ Danger voltage



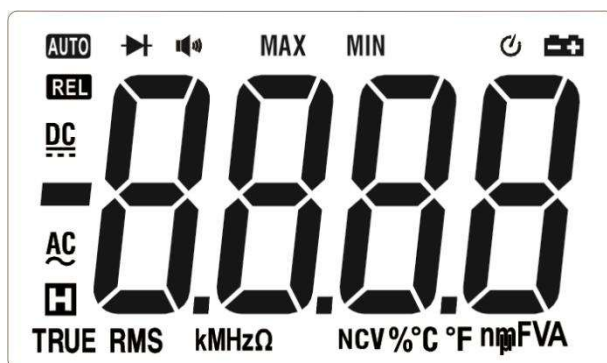


Front Panel Description

1. Flashlight
2. LCD display
3. Function keys
4. Rotary switch
5. Input Jacks



Symbols of LCD Display



Description of Functional Keys

Symbol	Description	Symbol	Description
H	Data Hold		Low Voltage Indication
	Diode Test		Continuity Check
Hz KHz MHz	Units of Frequency	nF uF mF	Units of Capacitance
Ω KΩ MΩ	Units of Resistance	μA mA A	Units of Current
DC	Direct Current	AC	Alternating Current
°F	Fahrenheit	°C	Centigrade
TRMS	True RMS		





Press this button to shift the functions among °C/°F; Hz/%; Ω / $\bullet$) / $\rightarrow$ /Capacitance; DCV/ACV/Hz/%; DCA/ACA/Hz/%; NCV/LIVE. Holding press this button to activate manual mode, hold again to return auto mode.



Holding press this button to activate backlight and flashlight function, holding press again to exit; slightly press to active data hold mode.



Slightly press this button to activate relative measurement function, the meter regard the value as reference, after that the displayed values is the real measurement minus the reference value, press this button again to exit, press again to exit REL mode; Holding press this button to activate MAX/MIN shift, holding press again to exit MAX/MIN mode.

Technical Specification

- Operating Temperature: 0-40 OC (<80%RH)
- Storage Temperature: -10~60 OC (<70%RH, Battery excluded)
- Maximum input Voltage between input socket and the earth: AC/DC 1000V.
- The Measurement principle: Double integral A/D conversion
- Sampling rate: Approx. 3 times/sec
- Input polarity indicator: Automatically display “-”
- Low battery indication: When battery is running shortly, “+” will appear in LCD display
- Product Size: 185(W)×88(L)×54(H)mm
- Weight: About 355g (Battery includes)
- Accessory:
 - (1) User Manual – 1pc
 - (2) Test Leads – 1 set
 - (3) Temperature probe – 1pc (battery not included in the set)

Measurement Specifications:

Accuracy: $\pm$ (%readings + digit) , warranty period: 12 months

Environment temperature: 18°C~28°C, humidity: $\leq$ 80%

DC Voltage (DCV) / AC Voltage (ACV)

Range	Resolution	DCV	ACV
60mV	0.01mV	$\pm(0.5\%+3d)$	$\pm(0.8\%+3d)$
600mV	0.1mV		
6V	0.001V		
60V	0.01V		
600V	0.1V		
1000V	1V	$\pm(1.0\%+5d)$	$\pm(1.0\%+5d)$
10kHz	0.001Hz- 0.01kHz		$\pm(0.1\%+4d)$
0.1-99.9%	0.1%		$\pm(2.0\%+5d)$





Input impedance: 10M Ω

Max.input voltage: mV range250V RMS DC/AC;

V range 1000V RMS DC/AC

DC Current (DCA) / AC Current (ACA)

Range	Resolution	DCA	ACA
600uA	0.1uA	$\pm(1.0\%+3d)$	$\pm(1.0\%+5d)$
6000uA	1uA		
60mA	0.01mA		
600mA	0.1mA		
6A	0.001A	$\pm(1.0\%+10d)$	$\pm(1.2\%+5d)$
10A	0.01A		
10kHz	0.001Hz-0.01kHz		$\pm(0.1\%+4d)$
0.1-99.9%	0.1%		$\pm(2.0\%+5d)$

Max. current : uAmA jack: 600mA/1000V fuse

20A jack: 10A/1000V fuse

Frequency / Duty Cycle(FREQ/%)

Range	Resolution	Accuracy
1Hz~10MHz	0.001Hz~0.01MHz	$\pm(0.1\%+4d)$
0.1-99.9%	0.1%	$\pm(2.0\%+3d)$

Overload protection: 600VDC/AC RMS

Resistance (Ω)

Range	Resolution	Accuracy
600 Ω	0.1 Ω	$\pm (0.8\%+3d)$
6k Ω	0.001K Ω	
60k Ω	0.01K Ω	
600k Ω	0.1K Ω	
6M Ω	0.001M Ω	
60M Ω	0.01M Ω	$\pm(1.0\%+5d)$

Overload protection : 600VDC/AC RMS

Measured resistance value = displayed value – test lead circuit short Value

Diode / Continuity

Range	Description
	Built-in buzzer will be sounded if resistance is less than 50 Ω
	Display forward voltage drop of diode, opposite displays "OL"

Overload protection: 600VDC/AC RMS

Temperature (TEMP)

Range	Resolution	Accuracy
-20 $^{\circ}$ C ~ 0 $^{\circ}$ C	1 $^{\circ}$ C	± 4
0 $^{\circ}$ C~400 $^{\circ}$ C		$\pm(1.0\% + 3d)$
400 $^{\circ}$ C~1000 $^{\circ}$ C		$\pm(2.0\% + 3d)$
-4 $^{\circ}$ F ~ 50 $^{\circ}$ F	1 $^{\circ}$ F	± 6
50 $^{\circ}$ F ~ 750 $^{\circ}$ F		$\pm(1.0\% + 4d)$
750 $^{\circ}$ F~1832 $^{\circ}$ F		$\pm(2.0\% + 5d)$





Capacitance (CAP)

Range	Resolution	Accuracy
60nF	0.01nF	$\pm(4.0\%+25d)$
600nF~6uF	0.1nF~0.001uF	$\pm(4.0\%+15d)$
60uF~600uF	0.01uF~0.1uF	
6mF~60mF	0.001mF~0.01mF	$\pm(5\%+25d)$

Overload protection: 300VDC or AC RMS

△Note: It is normal once the small value of capacitance dose not return zero, deduct the readings during measurement for getting the accurate value.

Operation Instruction

AC/DC Voltage Measurement

1. According voltage measurement requirements, select the suitable range
2. Set the rotary switch to the desired range based on the demands of the voltage under test.
3. Insert the black test time into COM jack and red test lead in to 
4. Touch the black test probe tip to the negative side of the circuit; touch the red test probe tip to the positive side of circuit.
5. Press  shift mode among AC voltage, DC voltage, frequency, duty cycle.

△NOTE :

- In small range testing, even without input or connection of test leads, the meter may display the value, that is normal and not affect the accuracy of the measurement.
- To avoid electrical shock and/or damage to the instrument, do not attempt to take any voltage measurement  that might exceed 1000VDC/VAC RMS

AC/DC Current Measurement

1. According current measurement requirements, set the rotary switch to  and slightly press  to shift modes among DC current, AC current, frequency, duty cycle.
2. Set the rotary switch to desired range based on the demands of the current under test.
3. Inert the black test lead into COM jack, red test lead into μAmA jack or 20A input jack.
4. Remove the power from the circuit under test and discharge the capacitors of the circuit.
5. Connect the black test lead to the lower voltage end of the circuit under test, and connect the red test lead to the higher voltage end of the circuit under test. (In series with the circuit to be tested)
6. Read the value in the LCD display.

△NOTE :

- According to current range and demands of insert jack to select the measuring ranges, max. current is less than 600mA in μAmA jack, and max. current is less than 20A in 20A jack.
- Never attempt to input the current in excess of input jack requirements to avoid damage meter.

Resistance, Diode and Continuity Measurement

1. Set the rotary switch to  and press  to select resistance, diode, continuity mode.
2. Insert the black test time into COM jack and red test lead in to 
3. Place the red test lead on the anode of diode and black test lead on the cathode of diode, the meter will show values in the LCD display.
4. Touch the test probe tips to the circuit or wire you wish to check, the max. value of resistance under check will be showed





in display, if the resistance is less than 50Ω , the audible signal will be sounded.

5. Read the values in LCD display. (diode unit is “V”; continuity, resistance unit is “ Ω ”)

△NOTE :

- Disconnect power to the unit under test and discharge all capacitors before taking test.
- To avoid damage the meter, do not input any voltage.

Capacitance Measurement

1. Set the rotary switch to  and press  to select capacitance mode.
2. Insert the black test time into COM jack and red test lead in to 
3. Discharge all capacitors under testing.
4. Touch the test leads to the capacitor to be tested, black test lead connect the negative and red test lead connect the positive of capacitor.
5. Read the value in LCD display.
6. When measuring the small value capacitors, meter may not return zero due to interfere, press  to clear 0 first, and then to proceed the capacitance measurement.

△NOTE:

- Disconnect power to the unit under test and discharge all capacitors before test.
- To avoid damage the meter, do not input any voltage.

Temperature Measurement

1. Set the rotary switch to , and press  to select $^{\circ}\text{C}/^{\circ}\text{F}$ mode.
2. LCD displays values of environmental of temperature.
3. Insert the K-type temperature probe red plug into the input  jack, insert black plug of thermo probe into COM jack, making sure to observe the correct polarity.
4. Read the temperature value in the LCD.

△NOTE:

Since cold-junction compensating circuit stalled inside meter, due to good sealing of meter, it takes long time to reach the thermal balance with the measuring environment, the meter needs to be placed in the measuring environments for a longer time to get the more accurate readings.

Frequency / Duty Cycle Measurement

1. Set the rotary switch to  range
2. Insert the black test time into COM jack and red test lead in to  Jack.
3. Touch the test lead tips to the circuit under test.
4. Read the frequency value in the LCD display.

△NOTE:

- Slightly press  to select “Hz” or “%” mode.
- To avoid electric shock, do not apply more than 300VAC before taking measurement.





Non-Contact Voltage (NCV) Detection

1. Set the rotary switch to **NCV/Live** position (press  to select NCV mode), the LCD display “EF”.
2. Approach the top part of meter with the circuit under test, the audible alert signal will be sounded and LED blinked, the LCD shows “----” icon once voltage detected.
3. The LCD shows voltage intensity, more number of grids appears means voltage strong.

⚠ NOTE:

- The detection result is for reference; do not determine the voltage by NCV detection ONLY.
- Detection may interfere by socket design, insulation thickness and other variable conditions.
- The external interference sources, such as flashlight, motor, etc, may cause the wrong detection.
- To avoid damage meter, do not measure voltage under NCV range.

Live Wire Recognition LIVE)

1. Set the rotary switch to **NCV/Live** position, and press  to select LIVE mode.
2. Put red test lead into  jack and black test lead in to COM jack, connect red test lead tip with AC voltage, once the meter beeps up and red LED lights up, which means the live wire is detected.

⚠ NOTE:

When the circuit is in serious leakage, the red test lead even contact earth line, the buzzer of meter will be sounded and LED will be flickered.

Maintenance

To avoid electric shock, disconnect the test leads from any source of voltage before removing the back cover or the battery or fuse covers.

To avoid electric shock, do not operate the meter until the battery and fuse covers are in place and fastened securely.

Battery Installation

To avoid the false readings, replace the battery as soon as the battery indicator  appears.

1. Turn power off and disconnect the test leads from the meter.
2. Open the rear battery cover by using screwdriver.
3. Insert the battery into battery holder, observing the correct polarity.
4. Put the battery cover back in place, secure with the screws.

Replacing the Fuses

1. Turn power off and disconnect the test leads from the meter.
2. Remove the battery cover and the battery.
3. Remove the screws securing the rear cover.
4. Gently remove the old fuse and install the new fuse into fuse holder.
5. Replace and secure the rear cover, battery and battery cover.

