Pen probe style autorange digital multimeter

AX-201



Owners manual

WARRANTY

This instrument is warranted to be free from defects in material and workmanship for a period of one Lear. Any instrument found defective within one year from the delivery date and returned to the factory with transportation charges prepaid, will be repaired, adjusted, or replaced at no charge to the original purchaser. This warranty does not cover expandable items such as batteries or fuses. If the defect has been caused by a misuse or abnormal operating conditions, the repair will be billed at a nominal cost.

SAFETY INFORMATION

The digital multimeter has been designed according to IEC-61010 concerning electronic measuring instruments with a measurement category(CAT II 600V) and Pollution degree 2.

	**WARNING**
To avoid possible electric shock or personal injury, follow these guidelines:	

a. Do not use the meter if it is damage. Before you use the meter, inspect the case. Pay particular attention to the insulation.

b. Inspect the test lead for damage insulation or exposed metal. Check the test lead and test probe for continuity. Replace damage test lead before you use the meter.

c. Do not use the meter if it operates abnormally. Protection may be impaired. When in doubt, have the meter serviced.

d. Do not operate the meter around explosive gas, vapor or dust.

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

f. Before use, verify the meter's operation by measuring a known voltage.

g. When measuring current, turn off circuit power before connecting the meter to the circuit. Remember to place the meter in series with the circuit.

h. When servicing the meter, use only specified replacement parts.

i. Use caution when working above 30V ac rms, 42V peak, or 60V dc. Such voltages pose a shock hazard.

j. When using the probes, keep your fingers behind the finger guards. Never use hand or skin to touch the probes and any live conductor.

k. When making connections, connect the test lead before you connect the test probe. When you disconnect them, disconnect the test probe first.

l. Remove the test lead and test probe from the circuit under test before you open the case or battery door.

m. Do not operate meter with the battery door, portions of the case or the test probe removed or loosened.

n. To avoid false readings, which could lead to possible electric shock or personal injury,

replace the battery as soon as the low battery indicator () appears.

o. Remaining endangerment: When an input terminal is connected to dangerous live potential it is to be noted that this potential at all other terminals can occur!

p. CATII-measurement Category II is for measurements performed on circuits directly connected to low voltage installation. (Examples are measurements on household appliances, portable tools and similar equipments.) Do not use the meter for measurements within Measurement Categories III and IV.

Caution:

To avoid possible damage to the meter or to the equipment under test, follow these guidelines:

• Disconnect circuit power and discharge all capacitors before testing resistance, diode or continuity.

• Use the proper function, and range for your measurements.

• Before measuring current, check the meter's fuse and turn off the power to the circuit before connecting the meter to the circuit.

• Before rotating the function switch to change functions, disconnect the probes from the circuit under test.

• Remove the probes from the circuit under test before opening the case or the battery cover.

GENERAL DESCRIPTION

This meter is a compact 3 ½-digit autorange digital multimeter for measuring DC and AC voltage, DC and AC current, resistance, diode, continuity and logic level. It has the functions of polarity indication, data hold, overrange indication, backlight, auto power-off, and flashlight. It can be operated easily and is an ideal measurement tool.

SYMBOLS

	AC (Alternating Current)
	DC (Direct Current)
	DC or AC (alternating current or direct current)
	Caution, risk of danger, refer to the operating manual before use.
	Caution, risk of electric shock
	Earth (ground) Terminal
	Fuse
	Conforms to European Union directives
	The equipment is protected throughout by double or reinforced insulation
	Diode
	Continuity test
	Low battery
LOGIC	Logic level test
AUTO	Autorange

SPECIAL MARKS

For your safety, there are some marks on the panel.

Be cautioious.

200mA≂ 600V≂ MAX	The max. voltage the meter can measure is 600V DC or AC. The max. current the meter can measure is 200mA DC or AC
CAT II 600	The meter complies with CAT II 600

FEATURES

Dsiplay: 3 ½ - digit LCD with a max. reading of 1999

Polarity: Auto polarity indication

Overrange Indication: "OL" shown on the display

Sampling Rate: About 3 times/sec.

Battery: 9V, 6F22 or equivalent

Low Battery Indication: "  " show on the display

Operating condition: 0~40°C, relative humidity: 75%

Storage condition: -20-60°C, relative humidity: <85%

Size: 230x57x30mm

Weight: about 182g (including battery)

SPECIFICATIONS

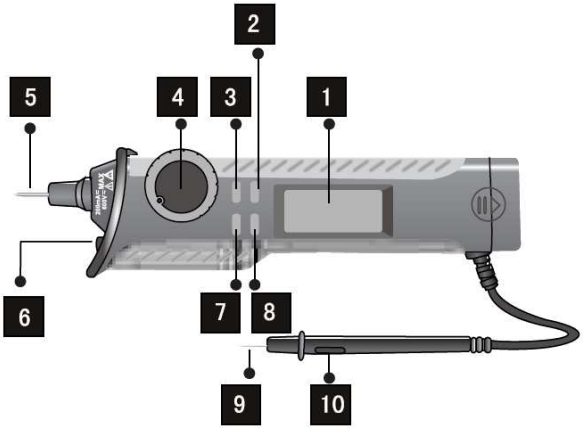
Accuracy is specified for a period of one year after calibration and at 23±5°C with relative humidity up to 75%. Accuracy specifications take the form of:

±([% of reading]+[number of Least Significant Digits])

Function	Range	Resolution
	200mV	±(0.5% + 2)
	2V-20V-200V	±(0.7% + 2)
	600V	±(0.8% + 2)
	2V	±(0.8% + 3)
	20V-200V	±(1.2% + 3)
	600	±(1.5% + 3)
	200Ω	±(1.2% + 3)

	2kΩ,20kΩ.200kΩ, 2MΩ	±(1.0% + 2)
	20MΩ	±(2.0% + 2)
	Open circuit voltage ≈ 1.5V; Test current ≈ 0.5mA	
A ⎓	20mA	±(1.2% + 3)
	200mA	
A ~	20mA	±(1.5% + 5)
	200mA	
	If R <about 50Ω, the built0in buzzer sounds	

INSTRUCTION



1. Display

3 ½ digits LCD with max. reading 1999

2. Buton

To enable the flashlight function, Press and hold down this button.

3. H Button

To hold the present reading on the display, press this button, H will appears as an indicator.

To exit the Hold mode, just press this button again, "H" will disappears.

This button can also be used to arouse the meter from Sleep.

4. Function Switch

The switch is used for selecting the desired function. To preserve the battery's life, set the switch to "OFF" position when the meter is not in use.

5. Test Probe

Input probe (positive polarity) for the following teste: voltage, resistance, current (<200mA) and diode.

6. Flashlight LED

It is used for illumination.

7. S Button

This button can be used to switch the meter between the following measurement functions: DC voltage/AC voltage; DC current/AC current; diode/continuity.

8. ☀ Button

To turn on or off the backlight, press and hold down this button for about 1 second. The backlight will turn off automatically about 15 seconds later after it is turned on.

9. Probe of the Black Test Lead (negative)

10. Black Test Lead

OPERATION INSTRUCTION

Measuring DC Voltage

- Set the function switch to V≂ position,
- Press the S button to select DC range, the display shows ⎓.
- Connect the test probe and black test lead across the source or load to be measured.
- The display will show the reading and the polarity of the test probe connection.

Note:

Input impedance: about 10MΩ

The max. permitted input voltage: 600Vdc

Measuring AC Voltage

• Set the function switch to V≂ position,

• Press the S button to select AC range, the display shows ∿

• Connect the test probe and black test lead cross the source or load to be measured.

• The display will show the reading.

Note:

Input impedance: about 10MΩ

Frequency: 40Hz~400Hz

The max. permitted input voltage: 600Vac

Measuring DC Current

• Set the function switch to mA≂ position

• Press the S button to select DC range, the display show ⎓

• Connect the test probe and the black test lead in series with the circuit to be measured.

• The display will show the reading and the polarity of the test probe connection.

Note:

The max. permitted input current is 200mA, overcurrent will cause blowing to the fuse.

Measuring AC Current

• Set the function switch to mA≂ position.

• Press the S button to select AC range, the display shows ∿

• Connect the test probe and the black test lead on series with the circuit to be measured.

• Read the reading on the display.

Note:

The max. permitted input current is 200mA, overcurrent will cause blowing to the fuse.

Frequency: 40Hz~400Hz

Measuring Resistance

• Set the function switch to Ω position.

• Connect the test probe and the black test lead across the load to be measured.

• Read the reading on the LCD

Note:

If the resistance is more than 1MΩ, it may take several seconds to stabilize the reading. It is normal for high resistance measurement.

If the probes are open, overload indication will be shown on the display.

Disconnect circuit power and discharge all capacitors before testing resistance.

Measuring Diode

• Set the function switch to  position.

• Press the S button to make the display show 

• Connect the test probe to the anode of the diode, the black test lead to the cathode of the diode.

• Read the approximate forward voltage on the LCD.

Audible Continuity

• Set the function switch to  position.

• Press the S button to make the display show 

• Connect the test probe and the test lead cross the circuit to be measures.

• If the resistance is less than about 50Ω, the built-in buzzer will sound.

Note:

When the resistance is between 50Ω and 120Ω, the buzzer may sound or may not sound. When the resistance is more than 120Ω, the buzzer will not sound.

Measuring Logic Level (TTL)

• Set the function switch to **LOGIC** position.

• Connect the black test lead to the ground terminal of the circuit to be measured, the test probe to the desired test point of the circuit.

• If the level of the test point is more than or equal to 2.3±0.2V, the LCD will show **HI△** and the voltage value, meanwhile the meter will sound discontinuously.

• If the level of the test point is less than or equal to 0.8±0.2V, the LCD will show **LO▽** and the voltage value, meanwhile the meter will sound continuously.

• If the probes are open, the LCD will show a TTL logic level's approximate midvalue: 1.0~1.4V.

Auto Power off

If the meter is not operated for about 15 minutes, it will turn off automatically and stay in Sleep mode.

To arouse the meter from Sleep, turn the function switch or press the **H** button.

BATTERY REPLACEMENT

When the symbol  appears on the display, it indicates that the battery is low. To replace the battery, remove the screw from the battery cover, replace the exhausted battery with a new battery of the same type. Reinstall the battery cover and reinstall the screw.

Note:

Before replacing battery, set the function switch to OFF position.

FUSE REPLACEMENT

Fuse rarely needs replacement and is blown almost always as a result of operator's error. The meter uses a fuse with specified ratings: F 250mA L 250V

To replace the meter's fuse:

• Set the function switch to **OFF** position.

• Remove the battery door ("c")

• Remove the "a" part by turning it.

• Remove the back cover's screws, then remove the back cover ("b").

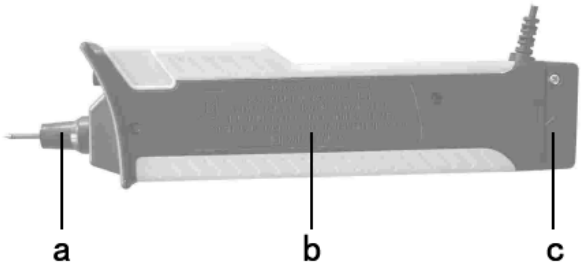
• Remove the fuse by gently prying one end loose, then slide the fuse out of its bracket.

• Install a new fuse of the specified ratings.

• Reinstall the back cover, battery door the "a" part and all the screws.

TIP:

If the test lead in the case is not put to a correct position, the back cover can not be installed.



ACCESSORIES

Bartery: 1 piece

Manual: 1 piece

DISPOSAL OF THIS ARTICLE

Dear Customer

If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.
Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.

