

LIMIT

Digital Clamp Meter

20



Operating manual

**Fig 1. Voltage measurement
DC and AC**

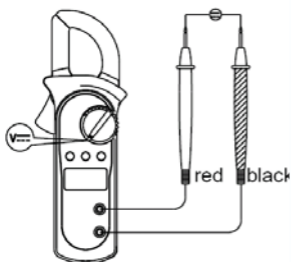
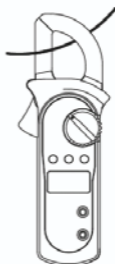


Fig 2. Current measurement AC



**Fig 3. Diode test
Continuity test
Resistance**

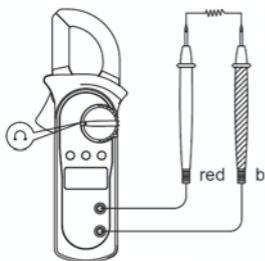
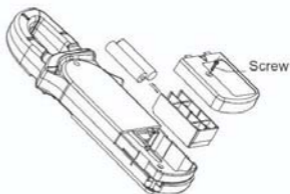


Fig 4. Replacing battery



Voltage

Range	Resolution	Accuracy	Overload Protection
2.000V	1mV	$\pm(1.2\%+5)$	600V ms
20.00V	10mV		
200.0V	100mV		
600V	1V	$\pm(1.5\%+5)$	

DC Voltage

Range	Resolution	Accuracy	Overload Protection
200.0mV	100mV	$\pm(0.8\%+3)$	600V DC rms
2.000V	1V	$\pm(0.8\%+1)$	
20.00V	10mV		
200.0V	100mV		
600V	1V	$\pm(1\%+3)$	

Resistance

Range	Resolution	Accuracy	Overload Protection
200.0 Ω	100m Ω	$\pm(1.2\%+2)$	600Vp
2.000k Ω	1 Ω	$\pm(1\%+2)$	
20.00k Ω	10 Ω		
200.0k Ω	100 Ω		
2.000M Ω	1k Ω	$\pm(1.2\%+2)$	
20.00M Ω	10k Ω	$\pm(1.5\%+2)$	

Continuity Test

Range	Resolution	Accuracy	Overload Protection
•)	100mΩ	Around $\leq 50\Omega$ the buzzer beeps	600Vp

Diode Test

Range	Resolution	Accuracy	Overload Protection
→	100mV	Display approximate forward voltage drop : 0.5V~0.8V	600Vp

AC Current

Range	Resolution	Accuracy	Frequency Response	Overload Protection
2.000A	0.001A	$\pm(4\%+20)$ $\leq 0.4A$	50Hz~60Hz	400A rms
		$\pm(3\%+12)$		
20.00A	0.01A	$\pm(3\%+12)$ $\leq 0.4A$		
		$\pm(2\%+8)$		
200.0A	0.1A			
400A	1A	$\pm(1.5\%+5)$		

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Overview

This Operating Manual covers information on safety and cautions. Please read the relevant information carefully and observe all the Warnings and Notes strictly.

Limit 20 is a clampmeter/multimeter for professional use. The instrument have autorange and the display have large digits, shows rotary switch position witch makes this instrument easy to handle for the user.

General Specifications

Measuring range and accuracy see page 2-3.

- Auto range.
- Display shows selected function.
- Maximum Display: 1999 or 3 _ digits.
- Displays OL when the instrument is overloaded.
- Max conductor diameter for clamp 26 mm.
- Sleep mode. Instrument turn off automatic if not active for 15 minutes.
- Temperature: Operating: 0°C~30°C
 Storage: -20°C~60°C
- Battery 2 pcs of 1,5V Type R6, AAA.
- Safety/Compliances: IEC61010 CAT II 600V/ CAT II 300 V over voltage and double insulation standard.
- Certification: 

Safety Information

This Meter complies with the standards IEC61010: in pollution degree 2, category CAT II 600V, CAT II 300V over voltage and double insulation.

Warning

To avoid possible electric shock or personal injury, and to avoid possible damage to the Meter or to the equipment under

test, adhere to the following rules:

- Before using the Meter inspect the case. Do not use the Meter if it is damaged or the case (or part of the case) is removed. Look for cracks or missing plastics. Pay attention to the insulation around the connectors.
- Inspect the test leads for damages insulation or exposed metal. Check the test leads for continuity.
- Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal and the grounding.
- The rotary switch should be placed in the right position and no any changeover of range shall be made during measurement is conducted to prevent damage of the Meter.
- When the Meter working at an effective voltage over 60V in DC or 42V rms in AC, special care should be taken for there is danger of electric shock.
- Do not use or store the Meter in an environment of high temperature; humidity, explosive, inflammable and strong magnetic fields. The performance of the Meter may deteriorate after dampened.
- When using the test leads, keep your fingers behind the finger guards.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes and current.
- Replace the battery as soon as the battery indicator appears. When to low battery, the Meter might produce false readings that can lead to electric shock and personal injury.

Functional buttons

- | | |
|---------------|---|
| Select | • Change between Diode and Continuity test when rotary switch are selected for any of this functions. |
| Max | • Start recording and updating maximum value. |
| Hold | • ON/OFF for hold function. H shows on display when value is frozen. |

Voltage measurement DC and AC (see fig 1)

1. Insert the red test lead into the $V\Omega$ terminal and the black test lead into the COM terminal.
2. Set the rotary switch to $V \text{---}$ position for DC or $V\sim$ for AC.
3. Connect the test leads across with the object being measured. The measured value shows on the display.

Note

- The instrument has an input impedance of approx. $10M\Omega$. This loading effect can cause measurement errors in high impedance circuits. If the circuit impedance is less than or equal to $10k\Omega$, the error is negligible (0.1% or less).

Current measurement AC (see fig 2)

Warning

Never attempt an in-circuit current measurement where the voltage between terminals and ground is greater than 600 V.

1. Set the rotary switch to 2/20 A or 200/400 A position.
2. Open the jaws and center one of the conductor. Only one conductor at each time can be measured. The measured value shows on the display.

Note

- Displays OL selected range is overload, it is required to select a higher range.

Resistance measurement (see fig 2)

1. Insert the red test lead into the $V\Omega$ terminal and the black test lead into the COM terminal.
2. Set the rotary switch to Ω position. Displays shows Ω .
3. Connect the test leads across with the object being measured. The measured value shows on the display.

Note

- The test leads can add 0.1Ω to 0.3Ω of error to resistance measurement. To obtain precision readings in low-resistance measurement, that is the range of 200Ω , short-circuit the input terminals beforehand and record the reading obtained. This is the additional resistance from the test lead.
- OL displays when the circuit is open or the resistor value is higher than max range.

Diode test (see fig 3)

Use the diode test to check diodes, transistors, and other semiconductor devices. The diode test sends a current through the semiconductor junction, and then measures the voltage drop across the junction. A good silicon junction drops between 0.5V and 0.8V.

To test a diode out of a circuit, connect as follows:

1. Insert the red test lead into the $V\Omega$ terminal and the black test lead into the COM terminal.
2. Set the rotary switch to diode position.
3. Push select button to select diode function. Displays shows diode symbol.
4. For forward voltage drop readings on any semiconductor component, place the red test lead on the component's anode and place the black test lead on the component's cathode.

The measured value shows on the display.

Continuity test (see fig 3)

To test for continuity, connect as follows:

1. Insert the red test lead into the $V\Omega$ terminal and the black test lead into the COM terminal.
2. Set the rotary switch to continuity position.
3. Push select button to select continuity function. Displays shows continuity symbol.

4. Connect the test leads across with the object being measured.
The buzzer sounds if the resistance of a circuit under test is less than 50Ω .

Replacing the Battery (see fig 4)

1. Disconnect the connection between the testing leads and the circuit under test when battery indicator appears on the display.
2. Turn the Meter to OFF position.
3. Remove the screw, and separate the case bottom from the case top.
4. Replace the battery with 2 new 1,5 V battery R6, AAA.
5. Rejoin the case bottom and case top, and reinstall the screw.