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Overview, Safety Standards, Safety Signs and Cautions

I. Overview

The PM2017B digital AC Clamp Meter is a stable, safe and reliable instrument. The whole circuit takes an integrated circuit as the core and is equipped with a full-range overload protection circuit. It has a novel appearance and can be used for measuring AC current, AC and DC voltage, temperature, frequency, resistance, capacitance, diode and circuit continuity and detecting non-contact voltage and live wire. It is a special instrument for electricians with superior performance.

II. Safety Standards

This meter is designed and produced in accordance with the safety standards IEC61010-1 and IEC61010-2-032 for electronic measuring instruments and handheld current clamp meters, and complies with the safety standards of double insulation CAT III 1000V, CAT IV 600V and pollution level 2.

III. Safety Signs

	Warning sign, cautious operation is required
	Can be used on live conductors
	Double insulation protection (Class II)
	Comply with European Community (EU) standard
	Ground connection

IV. Cautions

- Please read the instructions carefully before using the instrument, and pay special attention to the contents of "⚠". Please follow the operating instructions of "⚠".
- Ensure that the instruments and probes coming with the package meet the requirements of safety standards. If the probe is damaged, replace it with a probe of the same model or electrical specification.
- Before use, check the instrument and probes. If the probe is exposed,

the housing is damaged, and the display is abnormal, do not measure.

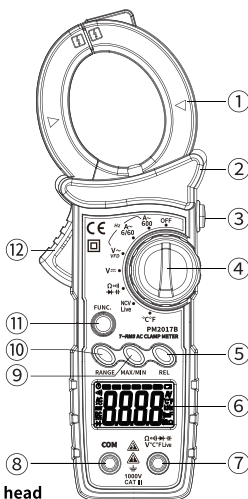
- When measuring, do not tap the unused input terminal.
- When the measuring voltage is higher than 60V DC or 30V AC, be careful and remember to keep your fingers behind the hand shelter of the probe.
- When the range of to-be-measured value is uncertain, set the function range to the maximum range position. Do not exceed the input limits specified for each range.
- Do not measure a voltage higher than the allowable input value.
- Before switching the function range switch, the probe shall leave the circuit under test.
- Before conducting in-circuit resistance measurement, cut off the power supply and release all charges at both ends of all capacitors.
- Do not expose the instrument to strong light, high temperature or humidity.
- Do not tap bare wires, connectors or circuits being measured with bare hands.

V. Accessories

- | | |
|----------------------|---|
| ● Instruction manual | 1 |
| ● Probe | 1 |
| ● Temperature probe | 1 |
| ● Packaging box | 1 |
| ● 1.5V AAA battery | 2 |

VI. Meter Diagram

Meter Diagram



1. AC current clamp head

Used for sampling AC current.

2. Safety guardrail

Effectively prevent the operator from accidentally touching the live conductor during the current measurement.

3. Data retention key/display backlight key

- Gently touch the "   " key, the final reading of the measurement will be kept on the meter display, and "  " symbol will be displayed. Gently touch "   " key again, and the meter will return to the normal measurement state;

- Press " " key for more than 2s to turn on or off the backlight of the LED display, and it will automatically turn off about 60s after turning on.

4. Functional range switch

Used to select various functions and range gears.

5. Relative measurement key

Gently touch the "REL" button to turn on or off the relative measurement function.

6. LCD display

Max display value: 6000 counts.

7. " " input jack

Except for the AC/DC current, non-contact voltage, and live wire detection ranges, the red test lead is inserted into the positive input terminal.

8. COM Input jack

Except for the AC/DC current, non-contact voltage, and live wire detection ranges, the black test lead is inserted into the negative input terminal.

9. Max/Min key

- When in the voltage, current or resistance gear, gently touch the "MIN/MAX" key to switch between the max and min values;
- Press the "MIN/MAX" key for more than 2s to exit the max and min measurement.

10. Manual range change

- Gently touch the "RANGE" key to enter the manual range mode, and touch again to the switch range;
- Press the "RANGE" key for more than 2s to exit the manual range mode.

11. Function selection key "FUNC"

- When in the AC current gear, it will not respond;
- When in the AC voltage range, tap lightly to switch between measuring voltage and frequency of voltage. When measuring AC voltage, long press to enter and exit VFD mode, but long press to measure frequency does not respond;
- When in the AC current mode, lightly touch to switch between measuring current value and current frequency, but long press does not respond;
- When in the Ω /continuity/diode/capacitor gear, gently touch to measure resistance, continuity, switching between diode and capacitor, and there will be no response when long press;
- When in the NCV/Live gear, gently touch to switch between NCV and Live, and there will be no response when long press;
- When in temperature mode, lightly touch to switch between temperature units of $^{\circ}\text{C}$ and $^{\circ}\text{F}$, and there will be no response when long press.

12. Trigger

When the trigger is pressed, the clamp head opens; when the trigger is released, the clamp head automatically closes.

VII. Instructions for Use



WARNING

Do not measure any voltage higher than 1000V DC or 1000V AC RMS to avoid electric shock and/or damage to the instrument. Do not apply voltage exceeding 1000V DC or 1000V AC RMS between the common terminal and the ground to prevent electric shock and/or damage to the instrument.

AC current measurement and AC current frequency measurement

1. Switch the functional range switch to the current gear, press the trigger to open the clamp head, place a wire of the line to be measured in the center of the clamp head and release the trigger, and the meter will display the measured current value;
2. Lightly touch the "**FUNC**" key to switch the display of measured current value and frequency;
3. Gently touch the "**RANGE**" key in the range of 6A to 60A to switch the current range.

Notes:

- △ It is not possible to measure multiple wires clamped at the same time.
- △ If the range of the measured current is not known in advance, place the functional range switch at the max range of the current, and then gradually lower it until satisfactory resolution is achieved.
- △ When measuring AC current, please place the conductor to be measured in the center of the clamp head. If the conductor to be measured is not in the center, the max position error can be increased by 1.5%.

AC voltage measurement and frequency measurement

1. Insert the red probe into the " Ω $\rightarrow$ V $\rightarrow$ C $\rightarrow$ F $\rightarrow$ L $\rightarrow$ i $\rightarrow$ t " jack, the black probe into the "**COM**" jack. Switch the functional range to the AC voltage range, gently touch the "**FUNC**" key to switch the AC voltage and frequency measurement modes, and connect the probe with the measured signal;
2. When measuring AC voltage, touch the "FUNC" button to switch between displaying the voltage value and frequency of the measured voltage;
3. When measuring AC voltages, gently touch the "**RANGE**" button to switch the range of AC voltages;
4. When using AC voltage, press the "FUNC" button for more than 2

 **Caution:**

- ### DC voltage measurement

-  **Caution:**

- ### Resistance measurement

- 7



Caution:

- △ When the measured resistance value exceeds the maximum range, the instrument with higher range shall be selected.
- △ When checking the in-circuit resistance, the power supply of the circuit to be tested must be cut off and all capacitors must be fully discharged.
- △ When measuring the resistance above $1M\Omega$, it may take several seconds for the reading to become stable, which is normal for high resistance measurement.

Circuit continuity measurement

1. Insert the red probe into the " $\Omega \rightarrow \rightarrow \rightarrow$ V^oC^oFLive" jack, and the black probe into the "COM" jack;
2. Place the functional range switch in the " $\Omega \rightarrow \rightarrow \rightarrow$ " gear;
3. Gently touch the "FUNC" key to switch the " $\rightarrow \rightarrow \rightarrow$ " gear, and connect the probe to two points on the circuit under test. If the built-in buzzer sounds, it means that the conduction resistance between the two points is not more than 60Ω .

Diode measurement

1. Insert the red probe into the " $\Omega \rightarrow \rightarrow \rightarrow$ V^oC^oFLive" jack, and the black probe into the "COM" jack. At this time, the polarity of the red probe is "+" and the polarity of the black probe is "-";
2. Place the functional range switch in the " $\Omega \rightarrow \rightarrow \rightarrow$ " gear;
3. Gently touch the "FUNC" key to switch the " $\rightarrow \rightarrow \rightarrow$ " gear. The red probe is connected to the anode of the measured diode, and the black one is connected to the cathode of the diode;
4. Read the approximate forward voltage drop value of the measured diode.

Capacitance measurement

1. Insert the red probe into the " $\Omega \rightarrow \rightarrow \rightarrow$ V^oC^oFLive" jack, and the black probe into

the "COM" jack;

2. Place the functional range switch in the " Ω " gear. Gently touch the "FUNC" key to switch the " $\rightarrow$ " gear, and the probe is connected to both ends of the measured capacitor;

3. Read the measurement result after the reading is stable.

Notes:

△ When the capacitance to be measured exceeds the max range, a higher range meter should be selected.

△ When checking the on-line capacitance, the power supply to the line to be measured must be cut off and all capacitors must be fully discharged.

△ When measuring the polar capacitance, the red probe should be connected to the positive terminal of the capacitance.

△ When measuring the capacitance above 100 μ F, it may take several seconds for the reading to be stable, which is normal for large capacitance measurement.

Non-contact voltage and live wire detection

1. Switch the function range switch to the non-contact voltage and live wire detection gear. At this time, the LCD displays "EF" as non-contact voltage detection. Place the NCV sensing area of the meter close to the tested wire, and the live wire can be determined by the sound of the buzzer and the LCD display;

2. Insert the red probe into the " Ω " jack. Gently touch the "FUNC" key to switch to live wire detection. At this time, the LCD displays "LE". Touch the probe to the measured conductor, and the live wire can be judged by the buzzer sound and LCD display.

Notes: Detection operations may be affected by factors, such as the shape design of the object to be measured, insulation thickness and insulation type. Even if there is no alarm indication, voltage may still

exist. Do not rely on non-contact voltage and live wire detectors to determine the presence of voltage on the object to be measured.

Temperature measurement

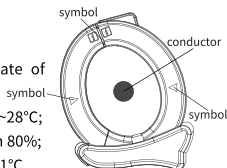
1. Place the functional range switch in the °C/°F gear. At this time, the LCD displays the current ambient temperature. Touch the "FUNC" button to switch the temperature unit °C or °F;
2. When the thermocouple is needed to measure the temperature, the red pen of the K-type thermocouple can be inserted into the "Ω·V·C·F Live" jack, the black pen is inserted into the "COM" jack, and the thermocouple probe contacts the measured object or area for measurement;
3. Read the measured temperature value.

VIII. Automatic shutdown

When there is no operation within 15min after turning on, the meter will enter a dormant state and automatically shut down to save power. After automatic shutdown, touch the "FUNC" key or rotate the functional range switch to restart the meter.

IX. Accuracy Index

- Accuracy: $\pm$ (% reading+word);
- Warranty period: one year from the date of manufacture;
- Working environment temperature: 18°C~28°C;
- Working environment humidity: less than 80%;
- Temperature coefficient: $0.1 \times \text{accuracy} / 1^\circ\text{C}$.



Notes: When measuring AC current, please place the conductor to be measured in the center of the clamp head. If the conductor to be measured is not in the center, the max position error can be increased by 1.5%.

AC current

Range	Resolution	Accuracy
6A	0.001A	$\pm (2.5\% \text{reading} + 8 \text{ words})$
60A	0.01A	
600A	0.1A	

Frequency range: 40Hz~1KHz.

AC current frequency

Range	Resolution	Accuracy
9.999Hz	0.001Hz	$\pm (1\% \text{reading} + 5 \text{ words})$
99.99Hz	0.01Hz	
999.9Hz	0.1Hz	

Minimum input range: greater than the 2A valid value.

AC voltage

Range	Resolution	Accuracy
6V	0.001V	$\pm (0.8\% \text{reading} + 5 \text{ words})$
60V	0.01V	
600V	0.1V	
1000V	1V	$\pm (1.0\% \text{reading} + 5 \text{ words})$

Input impedance: 10M Ω ;

Measured frequency range: 40Hz~1KHz;

Max allowable input voltage: 1000V DC or 1000V AC RMS.

AC voltage frequency

Range	Resolution	Accuracy
9.999Hz	0.001Hz	$\pm(1\%\text{reading}+5 \text{ words})$
99.99Hz	0.01Hz	
999.9Hz	0.1Hz	
9.999kHz	0.001kHz	
99.99kHz	0.01kHz	
999.9kHz	0.1kHz	

Signal input range: 200 mVAC ~ 10 VAC voltage RMS;

Overload protection: 1000V DC or 1000V AC effective value.

DC voltage

Range	Resolution	Accuracy
6V	0.001V	$\pm(0.5\%\text{reading}+3 \text{ words})$
60V	0.01V	
600V	0.1V	
1000V	1V	$\pm(0.8\%\text{reading}+3 \text{ words})$

Input impedance:10M Ω ;

Max allowable input voltage: 1000V DC or 1000V AC RMS.

Resistance

Range	Resolution	Accuracy
600 Ω	0.1 Ω	$\pm(1.0\%\text{reading}+3 \text{ words})$
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	$\pm(1.2\%\text{reading}+30 \text{ words})$

Overload protection: 1000V DC or 1000V AC RMS;

Open-circuit voltage: about 1V.

Continuity test

Function	Range	Resolution	Description	Function
	600Ω	0.1Ω	When the measured resistance is less than 60 ohms, the buzzer sounds, and when it is greater than 600 ohms, OL is displayed	Open circuit voltage is about 1V

Overload protection: 1000V DC or 1000V AC RMS.

Diode test

Function	Range	Resolution	Test conditions
	3V	0.001	Forward DC current: about 1mA; open-circuit voltage: about 3.0V. The display shows the approximate value of diode forward voltage drop.

Overload protection: 1000V DC or 1000V AC RMS.

Capacitance**Technical Indicators**

Range	Resolution	Accuracy
60nF	0.01nF	$\pm (4.0\% \text{reading} + 3 \text{ words})$
600nF	0.1nF	
6 μ F	0.001 μ F	
60 μ F	0.01 μ F	
600 μ F	0.1 μ F	
6mF	0.001m F	
60mF	0.01mF	$\pm (5.0\% \text{reading} + 5 \text{ words})$

Overload protection: 1000V DC or 1000V AC RMS.

Temperature

Range	Resolution	Accuracy
-20°C~1000°C	1°C	$\pm (2.0\% \text{reading} + 2 \text{ words})$
-4°F~1832°F	1°F	$\pm (2.0\% \text{reading} + 2 \text{ words})$

Overload protection: 1000V DC or 1000V AC RMS.

X. Technical Indicators

- Automatically select the range of measurement functions;
- Full range overload protection;
- Max voltage allowed between the measuring terminal and the ground: 1000VDC or 1000VAC;
- Working height: max altitude of 2,000m;
- Display: LCD;
- Max display value: 6000 counts;
- Polarity indication: automatic display, "-" indicates negative polarity;
- Over-range display: "OL" or "-OL";
- Conversion rate: about 3 times/s;

- Unit display: with function and electric quantity unit display;
- Automatic shutdown time: about 15min;
- Power supply: 1.5V AAA battery×2;
- Data retention display: "H";
- Battery undervoltage indication: LCD display "⬇" sign;
- Temperature coefficient: less than $0.1 \times$ accuracy/°C;
- Dimension: 195mm×66mm×33mm.
- Weight: about 187g (no battery).
- Max jaw opening size: 35mm/1.38";
- Working temperature: 18°C ~ 28°C;
- Storage temperature: -10°C ~ 60°C (<70%RH, without battery).

XI. Maintenance

- Before opening the back cover of the instrument, the probes should be disconnected from the measuring circuit.
- Only a damp cloth and a small amount of detergent can be used to clean the instrument. Do not use chemical solvents or abrasives to wipe the case.
- To avoid electric shock caused by false readings, replace the battery immediately when the instrument displays "⬇".
- Turn off the power when the instrument is not in use, and turn the function range switch to the "OFF" position.
- If the instrument is not used for a long time, take out the battery to prevent damage to the instrument.
- In case of any abnormality, stop using immediately and send for repair.
- Calibration or maintenance can only be carried out by professionals.

XII. Battery Replacement**Battery Replacement****⚠ WARNING**

To avoid electric shock, disconnect the probes before opening the battery cover and do not connect to any circuit under test or input signal.

Only replace batteries of the same model or electrical specification.

If the undervoltage symbol, "🔋", appears, it means that the battery is low (the deviation of the measured value in this state is greater) and needs to be replaced. Please follow the steps below:

1. Disconnect the probe from the circuit under test.
2. Turn the function range switch to "OFF" and remove the probes from the input jack.
3. Unscrew the screws on the battery cover with a screwdriver and remove the battery cover.
4. Take out the 2 used batteries and replace them with 2 new 1.5V SIZE AAA batteries.
5. Cover the battery cover and tighten the screws.

The rotation direction for removing the screws from the battery cover is as follows

