

TENMA®



MINI CLAMP METER

Model: 72-3500

CONTENTS

Page Number	Details
2	What's Included
2	Important Safety Information
3	General Overview
3	Product Overview
4	LCD
4	Operation
5	NCV Non-Contact Electric Field Measurement
5	Other Functions
6	Technical Specification
6	Maintenance & Repair
6	Replacing the Batteries

WHAT'S INSIDE

- Mini clamp meter
- User manual
- Two 1.5V AAA batteries

IMPORTANT SAFETY INFORMATION

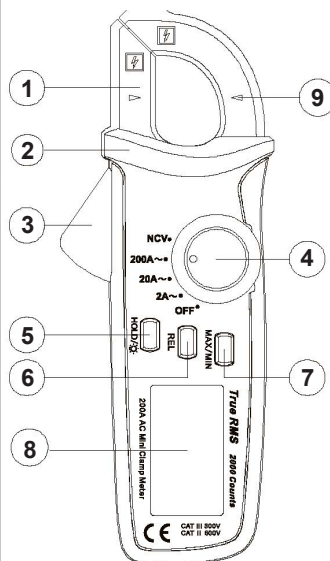
- When using electrical appliances basic safety precautions should always be followed.
- Before each use, check whether the current clamp meter housing or the cable insulation is damaged or cracked.
- When operating in dangerous environments where you may be exposed to live wires, use personal protection equipment to prevent accidents such as electric shock and arc discharge.
- Before removing the battery cover, remove the clamp meter from all energised circuits and disconnect the lead wire.
- Do not use the clamp meter in circuits with a voltage higher than 600V or frequency higher than 400Hz.
- Be careful working in environments with exposed wire as contact with the wire may result in an electric shock.
- Be extremely careful when working with voltages above 60V DC, 30V AC or 42V AC as they may cause electric shocks.
- Replace the batteries as soon as the low battery indicator appears.
- Only use the batteries recommended for this product - two AAA batteries.
- Ensure that the batteries are inserted correctly, observing the plus and minus marks on both the battery and the compartment.
- Remove the batteries if they are dead, or if the product is not going to be used for a long period of time.
- Never dispose of batteries in a fire or attempt to recharge ordinary batteries.

GENERAL OVERVIEW

1. Maximum overload protection for clamp head terminal: 200A
2. Maximum display: 2000 counts, update 2-3 times per second. Over range display: "OL" Work temperature: 0°C to 40°C Relative humidity: 0°C to 30°C, 75%, 30°C to 40°C, 50% Storage temperature: -10°C to 50°C
3. Electromagnetic compatibility In 1V/m radio frequency field, overall frequency = designated precision + 5% of range. Radio frequency field above 1V/m has no designated index.
4. Work altitude: 0 to 2000m
5. Built-in battery: 2 x AAA 1.5V
6. Low battery: LCD displays "🔋".
7. Dimensions (approx): 158 x 60 x 33.5mm Maximum clamp head side: 16mm
8. Weight: approx: 170g (including batteries)

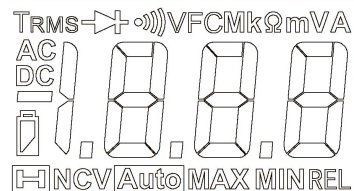
PRODUCT OVERVIEW

1. Clamp head
2. Protective barrier
3. Clamp head trigger - pull the trigger to open the clamp head.
4. Function selection button - rotate this button to switch to corresponding functions indicated on the panel.
5. HOLD/backlight key - for measuring readings. Press and hold for 2 seconds to turn on or off the backlight.
6. REL key - press to make the display show the current reference value, then again to display the difference between the measuring value and reference value. Press again to exit the function.
7. MAX/MIN key - press to display the maximum value, press again to display the minimum value. Press it one more time and it will display (MAX-MIN). Press and hold for a few seconds to exit the function.
8. LCD - measurement function, symbol and numerical value.
9. Indication mark for geometric centre of the clamp head.



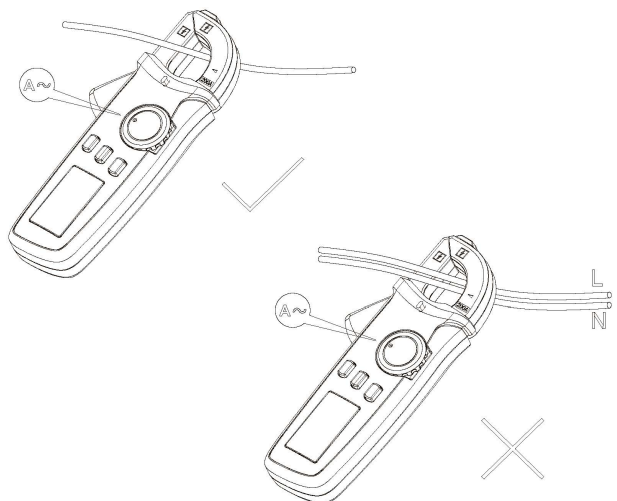
LCD

Symbol	Details	Symbol	Details
TRMS	True valid value measurement status	Ω kΩ MΩ	Resistance unit
AC/DC	AC/DC voltage measurement	mV, V	Voltage unit
—	Negative reading	mA, A	Current unit
	Diode measurement	(EF) NCV	Non contact AC voltage induction
	Circuit on-off measurement	Auto	Auto range
	Data hold	ZERO/REL	Zero/relative measurement
MAX	Maximum value hold	VFC	Variable frequency voltage/current measurement
MIN	Minimum value hold		Low battery
MAXMIN	Maximum and minimum differentiation hold		Auto power off



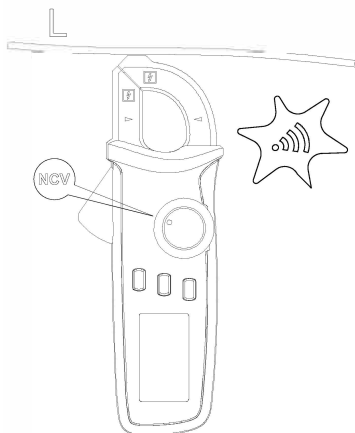
OPERATION

- Select range (2A~, 20A~, 200A~)
- Open the clamp head, hook the electric wire (single wire) and place the electric wire on the geometric centre.
- Make sure the left and right clamp heads are totally closed. There is no gap between the left and right clamp heads.
- Read the measurement data from the LCD.



NCV NON-CONTACT ELECTRIC FIELD MEASUREMENT

- If you wish to measure whether there is AC voltage or electromagnetic field, place the front end of the clamp head 8~15mm close to the test piece.
- Analogue quantity of inductive AC voltage is about \leq critical voltage 100V, display "EF", $>$ critical voltage 100V, prompted by buzzing.



OTHER FUNCTIONS

- Automatic power-off: when measuring, if the rotary button has not been used in 15 minutes, the instrument will automatically power off to save energy.
- In automatic power-off mode, turn the rotary button to **OFF** and restart the instrument or press the **REL** button.
- To turn off the automatic power-off function, press and hold the **REL** key, then turn on the instrument and you will hear 5 buzzes, which means the automatic power-off function is cancelled.
- Turn off and restart the machine and the automatic power-off function will be recovered.
- The buzzer will send out five warnings, one minute before automatic power-off.
- A long buzz will be heard before powering off. When the automatic power-off function is cancelled, you will hear five continuous warnings every 15 minutes.

Buzzer

- Press any key or rotate the function switch.
- If the function is valid, the buzzer will beep once.
- When measuring current out of range, the buzzer will beep to warn it is out of range (function status as below)
- 200A gear: current $>$ maximum range, buzzer beeps.

Detecting Low Voltage

- When the battery is lower than 2.5V, the low battery symbol appears.
- Measurements may not be as accurate once this symbol shows, therefore it is advisable to replace the battery as soon as possible.
- If it is lower than 2.2V, only the battery under voltage symbol shows after starting up and the instrument will not work.
- When the battery supply voltage lowers to 2.6V, the LCD backlight will be in weak or non-start state, but measurement functions will still work.

TECHNICAL SPECIFICATION

Accuracy: $\pm (a\% \text{ reading} + b \text{ word count})$, warranty period is one year.

Environment temperature: $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ($73.4^{\circ}\text{F} \pm 9^{\circ}\text{F}$) relative humidity $\leq 75\%$.

ACA Measurement		
Range	Resolution	Accuracy
2.000A	1mA	$\pm (4\% + 30)$
20.00A	10mA	$\pm (3\% + 10)$
200.0A	100mA	$\pm (2.5\% + 5)$

Overload protection 200A.

- Accuracy warranty coverage: 5~100% range, 2A open circuit allows <20 residue readings.
- The instrument's displays are true valid values. Frequency response: 50~60Hz
- Non-sinusoidal wave counts add error by crest factor:
 - when crest factor is 1~2, add 3%.
 - when crest factor is 2~2.5, add 5%.
 - when crest factor is 2.5~3, add 7%.

MAINTENANCE & REPAIR

- Before removing the cover of the instrument, ensure the power supply is switched off.
- Use a damp cloth and a mild detergent to clean the instrument cover.
- Do not use any chemicals, abrasives or solvents that could damage the instrument.
- Maintenance should be referred to qualified personnel.

REPLACING THE BATTERIES

- When the LCD shows the low battery symbol, replace the batteries immediately, otherwise measurement accuracy may be affected.
- Move the power switch to the **OFF** position.
- Unscrew the screw from the battery cover, remove the battery cover and replace the old batteries with two new replacements of the same specification (2 x AAA 1.5V).



INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.

This symbol indicate that separate collection of Waste Electrical and Electronic Equipment (WEEE) or waste batteries is required. Do not dispose of these items with general household waste. Separate for the treatment, recovery and recycling of the materials used. Waste batteries can be returned to any waste battery recycling point which are provided by most battery retailers. Contact your local authority for details of the battery and WEEE recycling schemes available in your area.

