

ISO-TECH

Instruction Manual

ICM 3091N

Digital AC Clampmeter

(EN) (FR) (IT) (DE) (ES)



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1. SAFETY INFORMATION

- Read the following safety information carefully before attempting to operate or service the meter.
- To avoid damage to the instrument do not exceed the maximum limits of the input values shown in the technical specifications tables.
- Never measure current while the test leads are inserted into the input jacks.
- Do not use the meter or test leads if they appear to be damaged. Use extreme caution when working around bare conductors or bus bars.
- Accidental contact with the conductor could result in electric shock.
- Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.
- Read the operating instructions before use and follow all safety information.
- Use caution when working with voltages above 60VDC or 30VAC RMS. Such voltages pose a shock hazard.
- Before taking resistance measurements or testing acoustic continuity, disconnect circuit from main power supply and all loads from circuit.

Safety symbols on the meter:



Caution, refer to this manual before using the meter.



Dangerous voltages.



Dangerous voltages.



Meter is protected throughout by double insulation or reinforced insulation. When servicing, use only specified replacement parts.



Comply with EN-61010-1, IEC 1010-2-032

2. TECHNICAL SPECIFICATIONS

2-1 General Specifications

Environment conditions :

- ① Installation Category III 600V 400A
- ② Pollution Degree 2
- ③ Altitude up to 2000 meters
- ④ Indoor use only
- ⑤ Relatively humidity 80% max.
- ⑥ Operation Ambient 0 to 40°C

Maintenance & Clearing:

- ① Repairs or servicing not covered in this manual should only be performed by qualified personnel.
- ② Periodically wipe the case with a dry cloth. Do not use abrasives or solvents on this instruments.

Maximum Voltage between any terminal and earth ground :
600Vrms.

Operating Principle : Dual slope integration

Display : 3 3/4 digit liquid crystal display (LCD)Max. reading
3999. Automatic indication of functions and symbols.


Range Selection : Automatic.

Over Range Indication :

LCD will display " OL ".

If measured value is over 4000V the LCD will display
"OL". (ACV & DCV range).

Low Battery Indication :

The  is displayed when the battery voltage drops below the operating voltage.

Power Supply : Two 1.5V , AA (UM-3) battery.

Battery Life : 100hr approx.

Polarity : Automatic polarity “ – ” display for negative input.

Auto power OFF time : 30 minutes

Operating Temperature and Humidity :

0 to 40°C (32 to 104°F) (R.H.<80% non-condensing)

Storage Temperature and Humidity :

-10°C to 60°C (14 to 140°F) (R.H.<70% non-condensing)

Dimensions : 192×64×31 mm

Weight : 250g. approx. (battery included).

Accessories : Instruction manual, Test leads, Carry Case.

Jaw Opening Diameter : Cables φ 25.4 mm.

2-2 Measurement Specifications

□ Alignment Marks

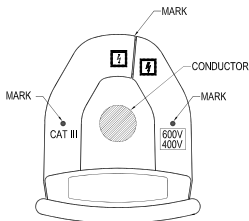


Figura 1 Alignment Marks

1. Position the conductor within the jaws at the intersection of the indicated marks as much as possible in order to meet this meter's accuracy specifications.
2. If the conductor is positioned elsewhere within the jaws, the maximum additional error result is 1.5 percent.

□ Measurement Limits:

AC Amperes : 1A to 400A

AC Voltage : 1V to 600V

DC Voltage : 0V to 600V

Resistance : 0.3Ω to 400Ω

□ Accuracy :

\pm (% of reading + number of digits) at 18 to 28°C (64 to 82°F) with relative humidity to 80%.

AC Current (Autorange)

Range	Resolution	Accuracy	Overload protection	Frequency Response
40A	0.01A	$\pm(2\%+10)$	660A	50/60 Hz
400A	0.1A			

DC Voltage (Aurorange)

Range	Resolution	Accuracy	Input Impedance	Overload protection
400V	0.1V	$\pm(1\%+5)$	1M	660Vrms
600V	1V			


AC Voltage (Aurorange)

Range	Resolution	Accuracy	Input impedance	Frequency Response	Overload protection
400V	0.1V	$\pm(1.5\%+10)$	1M Ω	50Hz to 60Hz	660Vrms
600V	1V				
400V	0.1V	$\pm(3\%+15)$		400Hz	
600V	1V				

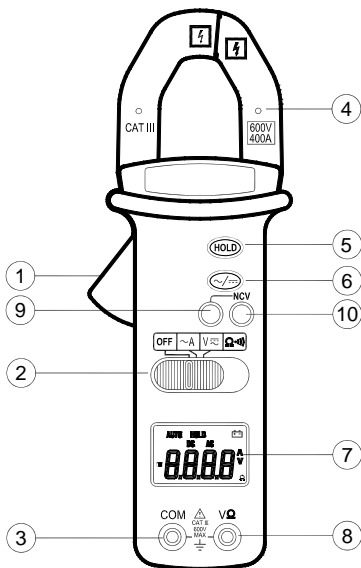
Resistance Ω (Aurorange)

Range	Resolution	Accuracy	Open circuit Voltage	Overload protection
400 Ω	0.1 Ω	$\pm(1\%+5)$	0.4V	660Vrms

Audible continuity

Range	Continuity beeper	Open Circuit Voltage	Overload protection
	$\leq 60\Omega$	0.4V	660Vrms

3. PARTS & CONTROLS

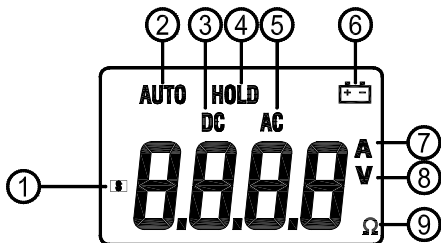


[Fig-2]

- ① Jaw opening trigger.
- ② Function switch
- ③ COM measuring input terminal :
Connect negative lead (black test lead) for voltage,
resistance, continuity measurement as a common reference.

- ④ Transformer jaws : Pick up the AC current flowing through the conductor.
- ⑤ Data Hold Button : Press it once to hold the measured value and store the value in memory. Press again to release hold function.
- ⑥ AC/DC button.
- ⑦ LCD Display : Digital LCD with indications for measurement values, unit symbols, decimal point, polarity, over range, and low battery etc.
- ⑧ “V Ω ” input terminal : Connect positive lead (red test lead) for voltage, resistance, continuity, measurement.
- ⑨ NCV (Non Contact Voltage) LED.
- ⑩ NCV function button : Press and hold this button to enable the NCV function.

LCD Display



1. Negative Polarity : Automatically indicates negative inputs.
2. Auto-range Mode : When the meter is in voltage range or current range, the proper scale will be selected automatically.
3. DC input indicator.
4. Data Hold Indicator.
5. AC input indicator.
6. Low Battery : Appears when battery charge is insufficient.
7. Ampere measuring indicator.
8. Voltage measuring indicator.
9. Ohm measuring indicator.

4. OPERATING INSTRUCTIONS**4-1 Measurement Procedures**

- 1). Make sure that the selected range is suitable for the measurement to be taken.
- 2). If the current under measurement is higher than the selected value for a long period, overheating may take place, compromising the safety and operation of inner circuits.
- 3). Do not measure currents on uninsulated high-voltage conductors >600V to avoid risks of discharge and/or incorrect readings.

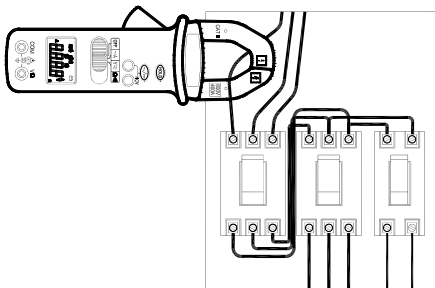
4-2 AC Current Measurements

WARNING

Make certain that all test leads are disconnected from the meter terminals.

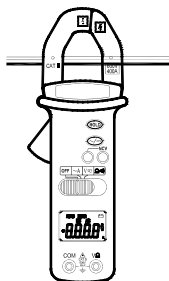
- 1). Set the function switch to the $\sim A$ range.
- 2). Clamp the current transducer (jaw) around one of the conductors under test. Make sure that the clamp jaw is fully closed.
- 3). Read the display value.

CORRECT



[Fig-3]

INCORRECT



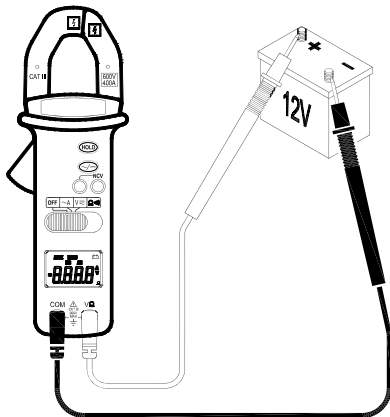
[Fig-4]

4-3 DC Voltage Measurements

WARNING

Maximum input voltage for the DC VOLT Range is 600VDC. Do not attempt to take any voltage measurement that exceeds 600VDC to avoid electrical shock and/or damage to the instrument.

- 1). Set the function switch to the \sim V range.
- 2). Press “ \sim /=



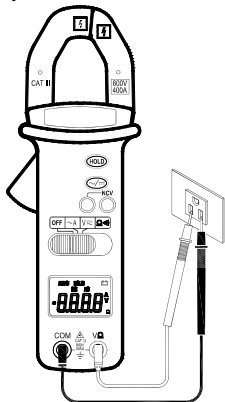
[Fig-5]

4-4 AC Voltage Measurements

WARNING

Maximum input voltage of AC VOLT Range is 600Vrms
Do not attempt to take any voltage measurement that exceeds 600Vrms to avoid electrical shock hazard and/or damage to the instrument.

- 1). Set the function switch to the $\overline{\text{---}}$ V range.
- 2). Press “ $\sim/\overline{\text{---}}$ ” button to select “AC” function.
- 3). Connect the black and red test leads to the COM and the + terminals respectively.
- 4). Connect the test leads to the circuit being measured and read the displayed value.



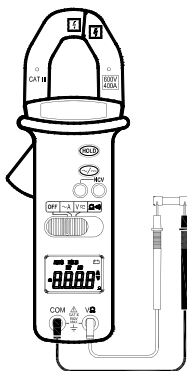
[Fig-6]

4-5 Resistance Measurement

WARNING

Before taking any in-circuit resistance measurement, remove power from the circuit being tested and discharge all capacitors.

- 1). Set the function switch to Ω range.
- 2). Before taking resistance measurements, make sure the circuit is not live and discharge any capacitors present in the circuit.
- 3). Connect the black test lead to the COM terminal and the red test lead to the + terminal.
- 4). Connect the test leads to the circuit being measured and read the displayed value.



[Fig-7]

4-6 Continuity Measurement

WARNING

Before taking any in-circuit measurement, remove power from the circuit being tested and discharge all capacitor in the circuit.

CONTINUITY MEASUREMENT

- 1). Connect red test lead to the “+” terminal and black test lead to the “COM” terminal.
- 2). Set range switch to the “ Ω •||” position.
- 3). Remove power from the circuit being tested and discharge all capacitors.
- 4). Connect the test leads in the circuit being measured.
- 5). The internal sounder will operate if the resistance is below 60Ω .

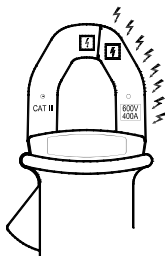
Note: Continuity test is available to check open / short circuits.

4-7 NCV (Non Contact Voltage) Function

Press and hold the “NCV” key at all functions except for “OFF”, the red “NCV” LED lights up and the internal sounder will operate when an electric field is detected by the sensor installed in the current clamp jaws. The “NCV” function indicates the presence of voltage in an electrical circuit or equipment without touching them.

The “NCV” sensor can detect electrical fields only from the direction indicated in the follow figure.

Note: Detection from a mains socket outlet is not possible.



5. MAINTENANCE**WARNING**


To avoid electrical shock or damage to the meter, do not permit water to get inside the case. Remove the test leads and any input signals before opening the case.

Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

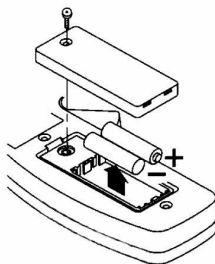
6. BATTERY REPLACEMENT

WARNING

To prevent electrical hazard or shock turn the clamp meter off and disconnect test leads before removing back cover.

The meter is powered by two 1.5V AA batteries. Replace batteries as soon as the  symbol is displayed.

- ① Turn meter off. Disconnect and remove the test leads.
- ② Position the meter face down. Unscrew the battery cover screw. Remove the battery cover
- ③ Replace the batteries.
- ④ Replace the battery cover.
- ⑤ Do not short-circuit used batteries, disassemble them, or throw them in a fire. Doing so may cause the batteries to explode.
- ⑥ Dispose of the used batteries in accordance with local regulations.



Measurement Category	Application
III	Measurement Category III is for measurements performed in the building installation. Examples include: measurements on distribution boards, junction boxes, socket-outlets and wiring and cables in the fixed installation.