

DCM268



AC/DC CLAMP METER

AC/DC STROOMTANG

PINCE AMPEREMETRIQUE CA/CC

User Manual

Gebruikershandleiding

Manuel d'utilisation

DCM268 -- AC/DC CLAMP METER

1. Introduction



Thank you for buying the DCM268 ! This device enables the user to measure DC and AC voltages, DC and AC current, resistance and frequency. You can also test diodes and continuity.

2. Safety

The DCM268 has been designed in accordance with **IEC1010-1** and **IEC1010-2-032** concerning safety requirements for electrical measuring instruments and hand-held current clamps with an overvoltage category (CATII) and pollution 2.

Safety Symbols



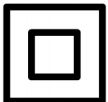
Important information with reference to safety, consult the manual !



Dangerous voltage may be present



Earth ground



Double insulation (Protection class II)

The DCM268 complies with the requirements of the following EC-directives : **89/336/EEC** (concerning electromagnetic compatibility) and **73/23/EEC** (concerning low voltage) as amended by **93/68/EEC** (concerning CE-labelling).

Radio interference or powerful electromagnetic fields in the vicinity of the equipment may influence the measurements. Just like all other electrical measuring instruments, the DCM268 will respond to unwanted signals (e.g. transients) that may occur in the circuit being tested. Exercise extreme caution when using this device and avoid misleading.

Safety Precautions

Respect the following safety instructions to ensure maximum personal safety and to keep the device itself in good working order :

- Prior to use, the operator should always inspect the device and the test leads for damage. Refrain from using the device if it is not in perfect working order (e.g. damaged housing, broken test leads, malfunctioning display).
- Do not expose the instrument to direct sunlight, extreme temperatures or moisture.
- Never ground yourself when executing electrical measurements. Do not touch metal pipes, outlets, fixtures, etc., which might be at ground potential. Protect yourself by wearing dry clothing and rubber-soled shoes. Put a rubber mat or approved insulating material under your feet.

- Exercise extreme caution when working with voltages in excess of 60VDC or 30Vrms AC. Keep your fingers behind the probe barriers while using the device.
- Never use the device to measure voltages that (may) exceed the max. input value for a particular function.
- Never touch wiring, connections or live circuits while the device is in use.

3. Maintenance

- Disconnect all test leads from energised circuits prior to opening the housing.
- Do not use the device unless the cover is in place and securely fastened.
- Do not apply abrasives or solvents to the meter. Use a damp cloth and a mild detergent for cleaning purposes.
- Only qualified technicians should attempt to repair or calibrate this device.
- If you insist on calibrating the instrument yourself, you should only do so in the presence of a qualified technician.

4. General Description

The DCM268 is a professional autoranging AC/DC clamp meter with a digital and quasi-analogue display. The device is equipped with a 32-segment bar graph and the measured values are displayed on a 3 ¾ digit LCD. The device can be used to measure DC & AC voltages, DC & AC current, resistance and frequency. The user can also test continuity and diodes.

5. Description of the Front Panel (see figure on p. 3)

① Jaws

They pick up the AC current flowing through the conductor.

② Hold-button

Press this button to freeze the last reading and make the "H"-symbol appear on the display. Press this button again to make the "H"-symbol disappear.

③ Function and Range Switch

Used to select functions and ranges as well as to (de)activate the device.

④ R-H button

Press this button to switch to manual operation when the device is in the auto-ranging mode. "R-H" will be displayed.

Push this button once to select the next range. Hold the button for more than one second to return to the auto-ranging mode.

This function can only be used for the AC, DC and resistance ranges.

⑤ "LIGHT" button (☞☛)

Press the (☞☛) "LIGHT"-button to activate the back light for ± 3 to 5 seconds.

⑥ Display

3 ¾ digit LCD, 3999 counts, bar graph with 32 segments. Digit height : 15mm.

⑦ "VHz"-jack

This is the positive (+) input terminal for tension and frequency measurements. Connect the red test lead to this input terminal.

⑧ "COM"-jack

This is the negative (-) input terminal for every type of measurement, with the exception of current measurements. Connect the black test lead to this input terminal.

⑨ "Ω"-jack

This is the positive input terminal for resistance measurements. Connect the red test lead to this input terminal.

⑩ FUNC. button

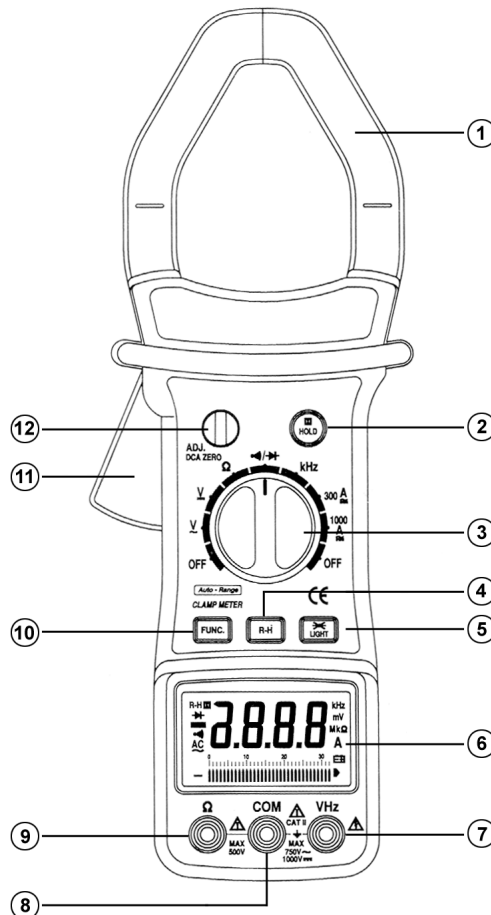
This button is used to select diode measurements ($\rightarrow|+$) or continuity measurements ($\bullet\!\!\!\rangle$) on the one hand, or to select ACA or DCA measurements on the other hand.

⑪ Trigger

Press the lever to open the jaws. The jaws will close again when the lever is released.

⑫ DCA ZERO

Turn this knob to the left or to the right in order to adjust the "zero position" prior to performing your measurements.



6. Operating Instructions

6.1. DC Voltage Measurements

- 1) Connect the red test lead to the "VHz"-jack and the black lead to the "COM"-jack.
- 2) Place the rotary switch in the V_{-} -position.
- 3) Connect the test leads to the source you wish to measure.
- 4) The voltage value and the polarity of the red test lead will appear on the display.

6.2. AC Voltage Measurements

- 1) Connect the red test lead to the "VHz"-jack and the black test lead to the "COM"-jack.
- 2) Place the rotary switch in the V_{\sim} position.
- 3) Connect the test leads to the source you wish to measure.
- 4) The voltage value will appear on the display.

6.3. AC Current Measurements

- 1) Place the rotary switch in the **300A-** or **1000A-**position. Push the **FUNC.** button to select **AC** in the 300A- or 1000A-range.
- 2) Press the trigger to open the jaws. Put one conductor between the jaws and let them close again, making sure that the conductor is gripped firmly.
- 3) The current value will appear on the display.

6.4. DC current Measurements

- 1) Place the rotary switch in the **300A-** or **1000A-**position. If **AC** is displayed, you should press **FUNC.** once in order to select DC measurements.
- 2) Turn the **DCA ZERO** knob to the left or to the right in order to adjust the "zero position" prior to performing your measurements.
- 3) Press the trigger to open the jaws. Put one conductor between the jaws and let them close again, making sure that the conductor is gripped firmly.
- 4) The voltage value will appear on the display.

Note : The jaws may become magnetised by prolonged use of the device. Proceed as follows if the display does not display "0" after a measurement :

- a) Open the jaws several times.
- b) Turn the **DCA ZERO** knob to the left or to the right in order to adjust the "zero position".
- c) Continue with your measurements.

6.5. Resistance Measurements

- 1) Connect the red test lead to the " Ω "-jack and the black test lead to the "**COM**"-jack. The polarity of the red test lead is positive (+).
- 2) Select the " Ω "-range with the rotary switch.
- 3) Connect the test leads to the resistance to be measured and read the value on the display.
- 4) Disconnect the resistance and discharge all capacitors before applying the test probes if the resistance to be measured is connected to a circuit.

Remarks :

- The overrange indication ("**OL**") will appear on the display if the input is not connected or if the resistance being measured exceeds the max. value of the selected range.
- Disconnect the circuit to be tested and make sure that all capacitors have been fully discharged before measuring the in-circuit resistance.
- The meter may need a few seconds to produce a stable reading for resistance measurements in excess of $1M\Omega$.
- The message "**OL**" will be displayed if the input is not connected, e.g. in case of an open circuit.

6.6. Frequency Measurements

- 1) Connect the red test lead to the "**VHz**"-jack and the black test lead to the "**COM**"-jack.
- 2) Place the rotary switch in the "**KHz**"-position.
- 3) Connect the test leads to the source to be measured.
- 4) The measured value is displayed on the LCD.

Remark :

The input voltage should be between 200mV and 10Vrms AC. The readings may be inaccurate with higher input voltages.

6.7. Audible Continuity Test

- 1) Connect the black test lead to the "COM"-jack and the red test lead to the "Ω"-jack. The polarity of the red test lead is positive (+).
- 2) Place the function switch in the "🔊"-position and push the "FUNC."-button on the front panel to select the audible continuity mode.
- 3) Connect the test leads with two points of the circuit you wish to test. The built-in buzzer will sound if continuity exists.


6.8. Diode Test

- 1) Connect the black test lead to the "COM"-jack and the red test lead to the "Ω"-jack. The polarity of the red test lead is positive (+).
- 2) Place the function switch in the "▶|"-position and push the "FUNC."-button on the front panel to select the diode test mode.
- 3) Connect the red test lead to the anode and the black test lead to the cathode of the diode to be tested.
- 4) The forward voltage drop of the diode will be displayed on the LCD.

7. Specifications

Max. accuracy is achieved during a one-year period after calibration. Ideal circumstances require an operating temperature of 18 to 28°C (64 to 82°F) and a max. relative humidity of 80%.

7.1. General Specifications

Max. voltage between terminals and earth ground	CAT II 1000VDC or 750Vrms AC (sine wave)
Display	3 ¾ digit LCD, bar graph with 32 segments
Reading Rate	2-3 readings/sec.
Ranging Method	Auto/Manual
Polarity Indication	"-" is displayed to indicate negative polarity
Overrange Indication	Only the message "OL" is displayed
Jaw Opening	55mm (= max. size or Ø of the conductor)
Power Supply	9V-battery (NEDA1604 or IEC6F22)
Battery-Low Indication	The  -symbol is displayed
Operating Temperature	0 to +40°C
Storage Temperature	-10 to +50°C
Temperature Coefficient	0.1 x specified accuracy / °C (<18°C or > 28°C)
Max. Altitude	2000m above sea level
Dimensions	282mm (L) x 104mm (W) x 47mm (H)
Weight	± 550g

7.2. DC Voltage

Range	Resolution	Accuracy
3V	1mV	±0.8% of rdg ± 1 digit
30V	10mV	
300V	0.1V	
1000V	1V	±1.0% of rdg ± 2 digits

Input impedance : 10MΩ.

7.3. AC Voltage

Range	Resolution	Accuracy
3V	1mV	±1.0% of rdg ± 5 digits
30V	10mV	
300V	0.1V	
750V	1V	±1.2% of rdg ± 5 digits

Input impedance : 10MΩ
 Response : average response, calibration in rms of a sine wave.
 Frequency range : 40Hz – 200Hz

7.4. AC Current

Range	Resolution	Accuracy
300A	0.1A	< 600A : ± 2.0% of rdg ± 10 digits > 600A : ± 3.0% of rdg ± 10 digits
1000A	1A	

Overload protection : 1200A for max. 60 seconds.
 Frequency range : 50Hz to 60Hz

7.5. DC Current

Range	Resolution	Accuracy
300A	0.1A	< 600A : ± 2.0% of rdg ± 5 digits > 600A : ± 3.0% of rdg ± 5 digits
1000A	1A	

Overload Protection : 1200A for max. 60 seconds

7.6. Resistance

Range	Resolution	Accuracy
300Ω	0.1Ω	±2.0% of rdg ± 10 digits
3kΩ	1Ω	
30kΩ	10Ω	
300kΩ	0.1kΩ	
3MΩ	1kΩ	±2.5% of rdg ± 10 digits
30MΩ	10kΩ	



Max. open-circuit voltage : 1.3V
 Overload Protection : 250VDC or Vrms AC for all ranges

7.7. Frequency

Range	Resolution	Accuracy
30KHz	10Hz	±2.0% of rdg ± 10 digits

Sensitivity : 200mV rms
 Input Limit : 250VAC

7.8. Diode & Audible Continuity


Range	Description
	Display reads approx. forward voltage drop of diode
	Built-in buzzer sounds if continuity exists (< 18Ω)

8. Replacing the Battery



WARNING

Disconnect all test leads from the circuits to be measured before opening the battery compartment. In order to avoid electroshocks, you should only use the device if the cover is in place and the screws are tightened.

The -symbol is displayed if the battery needs to be replaced. Proceed as follows :

1. Disconnect the test leads from all live sources, switch off the device and remove the test leads from the input terminals.
2. Use a screwdriver to remove the screw from the cover of the battery compartment and remove the cover.
3. Remove the battery and replace it with a new 9V-battery (NEDA1604 or IEC6F22).
4. Replace the cover and tighten the screw.

Remark : Respect all applicable laws when disposing of your old batteries.

9. Accessories

- User manual
- Set of test leads
- 9V battery (NEDA1604 or IEC6F22)
- Gift box

Important Remark :



Do not use this device in the vicinity of strong electromagnetic fields (approx. 3V/m). The precision of your measurements may be reduced to as little as \pm (12% of the reading + 6 digits).