EN - User's manual

CHAUVIN ARNOUX

C.A 745 N

Voltage tester

Measure up

Thank you for purchasing a **C.A 745N voltage tester.**

For best results from your instrument:
- **read** these operating instructions carefully,
- **comply** with the precautions for use.

WARNING, risk of DANGER! The operator must refer to these instructions whenever this danger symbol appears.

Equipment protected by double insulation.

Battery.

Earth.

Important information.

Chauvin Arnoux has designed this instrument in the context of a global eco-design approach. A life cycle analysis was carried out to master and optimize the impact of this product on the environment. More precisely, the product exceeds the requirements of regulations as regards recycling and valuation.

The CE marking indicates compliance with the European Low Voltage Directive 2014/35/EU, the Electromagnetic Compatibility Directive 2014/30/EU, and the Directive on the Restriction of Hazardous Substances RoHS, 2011/65/EU and 2015/863/EU.

The rubbish bin with a line through it means that, in the European Union, the product must undergo selective disposal in compliance with Directive WEEE 2012/19/EU.

Definition of measurement categories

- Measurement category IV corresponds to measurements taken at the source of low-voltage installations.
  Example: power feeders, counters and protection devices.
- Measurement category III corresponds to measurements on building installations.
  Example: distribution panel, circuit-breakers, machines or fixed industrial devices
- Measurement category II corresponds to measurements taken on circuits directly connected to low-voltage installations.
  Example: power supply to electro-domestic devices and portable tools.

PRECAUTIONS FOR USE

This instrument is compliant with safety standard IEC/EN 61010-2-033, and the leads are compliant with IEC/EN 61010-031, for voltages up to 600V in measurement category III.

Failure to observe the safety instructions may result in electric shock, fire, explosion, and destruction of the instrument and of the installations.

- The operator and/or the responsible authority must carefully read and clearly understand the various precautions to be taken in use. Sound knowledge and a keen awareness of electrical hazards are essential when using this instrument.
- Do not use your instrument on networks of which the voltage or category exceeds those stated.
- Do not use the instrument if it seems to be damaged, incomplete, or poorly closed.
- Do not use the instrument in an explosive atmosphere or in the presence of flammable gases or vapours.
- Before each use, check the condition of the insulation on the leads, housing, and accessories. Any item of which the insulation is deteriorated (even partially) must be set aside for repair or scrapping.
- Use only the leads and accessories supplied. The use of leads (or accessories) of a lower voltage rating or category limits the use of the combined instrument + leads (or accessories) to the lowest category and service voltage.
- Use personal protection equipment systematically.
- When handling the instrument and test probes, keep your fingers behind the physical guard.
- All troubleshooting and metrological checks must be done by competent, accredited personnel.

CONTENTS

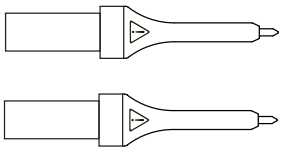
1. PRESENTATION

1.1. DELIVERY CONDITION

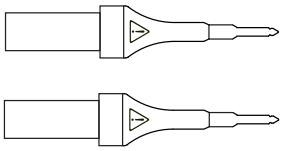
C.A 745N voltage tester
Delivered in blister pack with:
- one red test probe 2 mm in diameter,
- one black lead terminated by a removable black probe tip 2mm in diameter,
- two alkaline batteries (AAA or LR3),
- one multilingual quick start guide,
- one test certificate.

1.2. ACCESSORIES AND SPARE PARTS

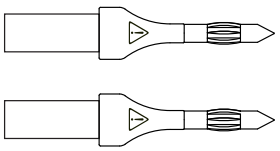
- Carrying bag
- LR3 o AAA batteries
- Test probes 2mm in diameter and 4mm long (one red and one black) 600V CAT III



- Test probes 2mm in diameter and 15mm long (one red and one black) 300V CAT II

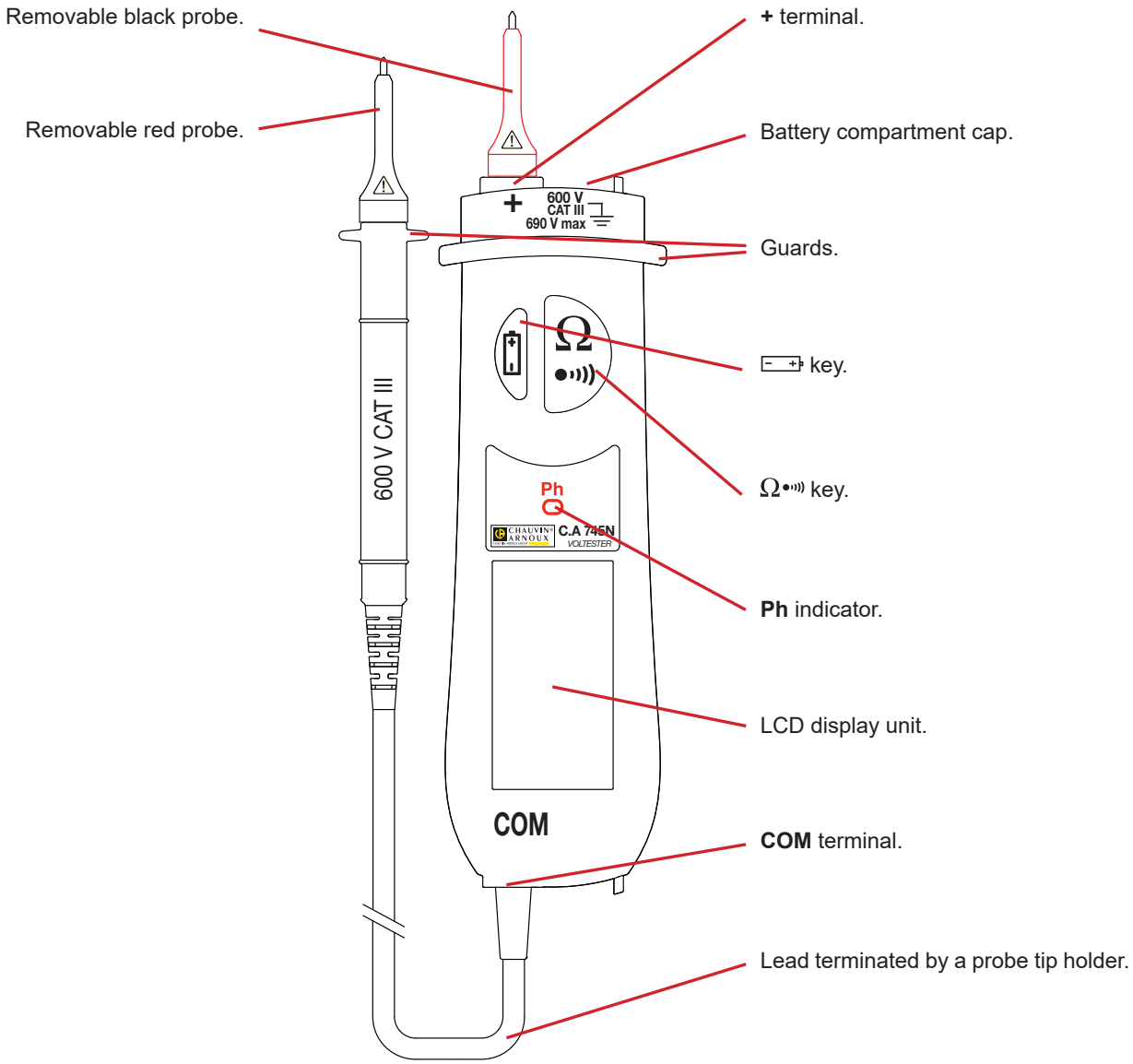


- Test probes 4mm in diameter and 19mm long (one red and one black) 300V CAT II



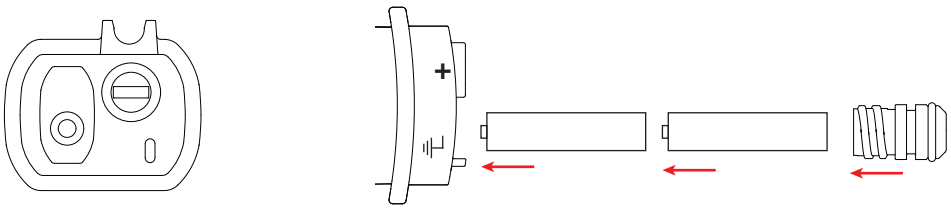
For the accessories and spares, consult our web site:
www.chauvin-arnoux.com

1.3. C.A 745N



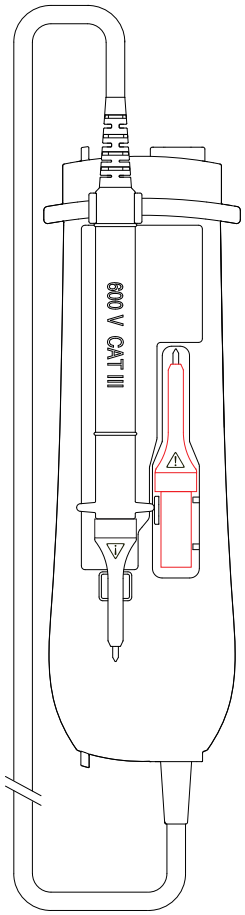
1.4. INSERTING THE BATTERIES

- Use a screwdriver to unscrew the battery compartment cap.
- Insert the two batteries provided (AAA or LR3 1.5V alkaline batteries).
- Screw the battery compartment cap all the way back in and make sure that it is completely and correctly closed.

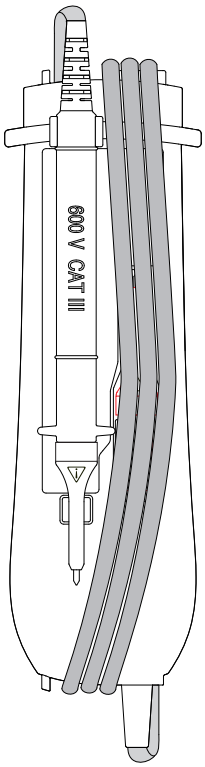


1.5. STORAGE

When the instrument is not being used, the probe tips can be stored on the back of the instrument.



You can also wrap the lead around the instrument.

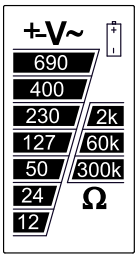


2. USE

This device is a voltage tester. It measures AC and DC voltages and resistances. It also has a continuity function and a diode function and can be used to identify a phase.

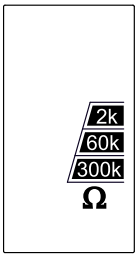
2.1. INSTRUMENT TEST

Before making any measurements, test all of the functions of the instrument.

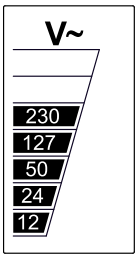


- To test the battery, press the ⊟ key. All segments of the display unit light and the instrument emits a continuous beep.
  If the battery voltage is too low for correct operation of the instrument, the ⊟ symbol flashes.
  If the battery voltage is much too low, the display unit will not light.
  In both cases, it is time to replace the batteries (see § 4.2).

- With the inputs disconnected, press the Ω•))) key. The display unit must remain completely off.



- Connect the red probe tip to the **+** terminal and the black probe tip to the **COM** terminal. Bring the two probe tips together and press the Ω•))) key. The instrument indicates a resistance less than 2 kΩ and emits a continuous beep.



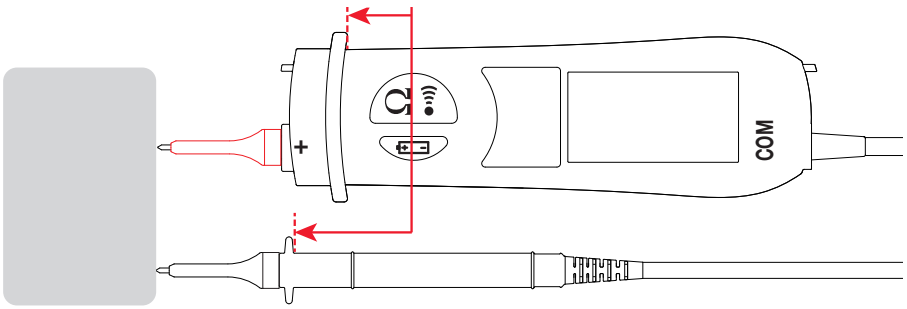
- Measure a known voltage greater than 12V.

If the results of these four tests are correct, your instrument is ready for use.

2.2. VOLTAGE

- Connect the red probe tip to the **+** terminal and the black probe tip to the **COM** terminal.
- Keep your hands behind the guards of the device and of the test probe.

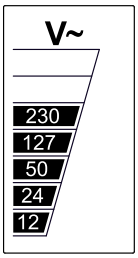
Position beyond which your hands must not go.



- Place the test probes on the element to be tested and maintain a firm contact.

- The voltage is displayed.

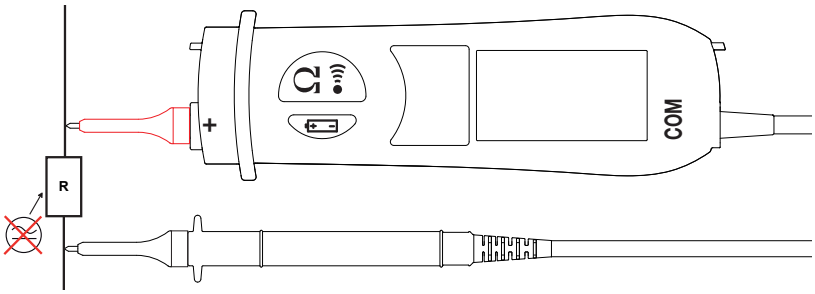
  If the voltage is < 12 V, the instrument displays nothing.
  If the voltage is > 50 V, the instrument emits an audible signal to indicate that the voltage is dangerous.
  If the voltage is AC, the instrument displays **~**.
  If the voltage is DC, it displays **+** or **-** depending on the polarity.



Do not use the C.A 745N to check for the absence of a voltage. For that, use a VAT.

2.3. RESISTANCE AND CONTINUITY

- Connect the red probe tip to the **+** terminal and the black cord to the **COM** terminal.
- Keep your hands behind the guards of the device and of the test probe.
- Place the test probes on the element to be tested. If a voltage is present, the instrument so indicates.



Do not make a resistance measurement on a live circuit.

- Press the Ω•))) key (right in the middle) and hold it down.
- The resistance is displayed.

If the resistance is less than 2 kΩ, the instrument emits a continuous beep.

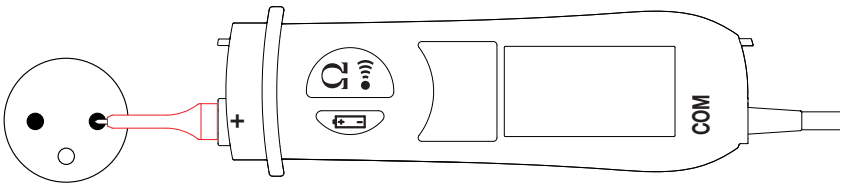
Above 300 kΩ, the instrument displays nothing.

2.4. DIODE TEST

- Proceed in the same way as for a resistance test.
- Place the red probe tip on the anode of the diode to be tested and the black probe tip on the cathode.
- Keep the Ω•))) key pressed.
- If the instrument emits a beep, the diode is functional.

2.5. PHASE DETECTION

- Connect the red probe tip to the **+** terminal (or the black probe tip to the COM terminal: only one is needed, and either will do)
- Keep your hands behind the guards of the device and of the test probe.
- Place the test probes on the element to be tested.



- If a voltage > 100V is present, the instrument so indicates by having the **Ph** indicator flash.

No flashing of the **Ph** indicator does not mean no voltage..

3. CHARACTERISTICS

3.1. REFERENCE CONDITIONS

Quantity of influence	Reference values
Temperature	23 ± 5 °C
Relative humidity	30 to 75% RH
Supply voltage	3 ± 0.1V
Frequency of the measured signal	DC or 45 to 65Hz
Type of signal	sinusoidal
External electric field	< 1V/m
DC external magnetic field	< 40A/m

3.2. ELECTRICAL CHARACTERISTICS

3.2.1. VOLTAGE

Nominal voltages: 12, 24, 50, 127, 230, 400, 690 VAC / VDC.
Frequency of operation: 0 to 400Hz.
Input impedance: 400 kΩ approximately.

The indicator corresponding to voltage V lights before the voltage reaches 85% V.
If no indicator lights, the voltage present is < 12V.

3.2.2. RESISTANCE AND DIODE

Nominal resistances: 2 kΩ, 60 kΩ, 300 kΩ.
Triggering at to within 25%
Test current ≤ 100µA
Open-circuit voltage ≤ 3.8V

3.2.3. PHASE DETECTION

Frequency: at 50 and 60Hz
Voltage > 100VAC

3.3. ENVIRONMENTAL CONDITIONS

Operating range:
-10°C at 55°C and ≤ 80%RH without condensation up to 40° C.

Storage range (without battery):
-20°C at +55°C and ≤ 90%RH without condensation up to 45°C.

For use indoors and outdoors without rain.
Pollution degree: 2.
Altitude: <2000m.

3.4. POWER SUPPLY

The instrument is powered by two 1.5V alkaline batteries (type AAA or LR3).
Battery mass: approximately 2 x 12 g.
Battery life is 150 h.

For an extended period of non-use or storage, withdraw the batteries from the electronic unit.

3.5. CHARACTERISTICS OF CONSTRUCTION

Dimensions (L x W x D)	180 x 52 x 45 mm
Mass	200 g approximately
Cable	length 142 cm
Protection rating	IP 54 according to IEC 60529 IK 04 according to IEC 62262
Drop test	2 meters.

3.6. ELECTRICAL SAFETY

This instrument is compliant with safety standard IEC/EN 61010-2-033, and the leads are compliant with IEC/EN 61010-031, for voltages up to 600V in measurement category III.

Double or reinforced insulation ⧈.

3.7. ELECTROMAGNETIC COMPATIBILITY

Emission and immunity in industrial environment according to IEC/EN 61326-1.

4. MAINTENANCE

Except for the batteries, the instrument contains no parts that can be replaced by personnel who have not been specially trained and accredited. Any unauthorized repair or replacement of a part by an “equivalent” may gravely impair safety.

4.1. CLEANING

Disconnect the instrument completely.

Use a soft cloth, dampened with soapy water. Rinse with a damp cloth and dry rapidly with a dry cloth or forced air. Do not use alcohol, solvents, or hydrocarbons.

4.2. REPLACEMENT OF BATTERIES

If the symbol flashes during the battery test, or is displayed during a measurement, you must replace the batteries.

- Disconnect the instrument completely.
- Refer to §1.4 for the replacement of the batteries.

Spent batteries must not be treated as ordinary household waste.
Take them to the appropriate recycling collection point.

5. WARRANTY

Except as otherwise stated, our warranty is valid for **24 months** starting from the date on which the equipment was sold. The extract from our General Conditions of Sale are available on our website.
www.group.chauvin-arnoux.com/en/general-terms-of-sale

The warranty does not apply in the following cases:

- inappropriate use of equipment or use with incompatible equipment;
- modifications made to the equipment without the explicit permission of the manufacturer's technical staff;
- work done on the instrument by a person not approved by the manufacturer;
- adaptation to a particular application not anticipated in the definition of the equipment or by the user manual;
- damage caused by shocks, falls, or floods.

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