CHAUVIN ARNOUX

FR - Notice de fonctionnement
GB - User's manual
DE - Bedienungsanleitung
IT - Manuale d'uso
ES - Manual de instrucciones

C.A 762

Détecteur de tension
Voltage detector
Spannungsprüfer
Rivelatore di tensione
Detector de tensión

Measure up

ENGLISH

Thank you for purchasing a **C.A 762 voltage detector**.

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.

Equipment suitable for live work.

Battery.

Earth.

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

The UKCA marking certifies that the product is compliant with the requirements that apply in the United Kingdom, in particular as regards Low-Voltage Safety, Electromagnetic Compatibility, and the Restriction of Hazardous Substances.

The rubbish bin with a line through it indicates that, in the European Union, the product must undergo selective disposal in compliance with Directive WEEE 2012/19/EU. This equipment must not be treated as household waste.

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 domestic electrical appliances and portable tools.

PRECAUTIONS FOR USE

This device is protected against voltages up to 600V with respect to earth in measurement category IV.

The protection provided by the device may be compromised if it is used other than as specified by the manufacturer and so endanger the user.

- Do not exceed the maximum rated voltage and current and the measurement category. Do not use your instrument on networks of which the voltage or category exceeds those stated.
- Comply with the conditions of use, namely the temperature, the humidity, the altitude, the degree of pollution, and the place of use.
- When handling the test probes, keep your fingers behind the physical guard.
- Use connection accessories of which the measurement category and service voltage are at least equal to those of the installation being measured.
- Do not use the device if it is open, damaged, or poorly reassembled, or its accessories if they seem to be damaged.
- The device must be kept clean so that the condition of the cable insulators, housing, and accessories can be checked. Any component whose insulator is damaged (even partially) must be sent for repair or scrapped.
- The device is designed to be used by qualified personnel and in compliance with national safety rules.
- We recommend wearing personal protective equipment when the environment in which the device is used makes it necessary.
- All troubleshooting and metrological checks must be done by competent, accredited personnel.

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SAFETY ADVICES

- Depending on the internal impedance of the voltage detector there will be a different capability of indicating the presence or absence of operating voltage in case of the presence of interference voltage.
- A voltage detector of relatively low internal impedance, compared to the reference value of 100 kΩ, will not indicate all interference voltages having an original voltage value above the ELV level. When in contact with the parts to be tested, the voltage detector may discharge temporarily the interference voltage to a level below the ELV, but it will be back to the original value when the voltage detector is removed.
- When the indication “voltage present” does not appear, it is highly recommended installing earthing equipment before work.
- A voltage detector of relatively high internal impedance, compared to the reference value of 100 kΩ, may not permit to clearly indicate the absence of operating voltage in case of presence of interference voltage.
- When the indication “voltage present” appears on a part that is expected to be disconnected of the installation, it is highly recommended confirming by another means (e.g. use of an adequate voltage detector, visual check of the disconnecting point of the electric circuit, etc.) that there is no operating voltage on the part to be tested and to conclude that the voltage indicated by the voltage detector is an interference voltage.
- A voltage detector declaring two values of internal impedance has passed a performance test of managing interference voltages and is (within technical limits) able to distinguish operating voltage from interference voltage and has a means to directly or indirectly indicate which type of voltage is present.

1. DELIVERY CONDITION

C.A 762 voltage detector
Delivered in blister pack with:
- one red test probe 2mm in diameter,
- one black lead terminated by a test probe 2mm in diameter,
- one strap,
- two AAA or LR3 alkaline batteries,
- one user's manual in 5 languages,
- one verification certificate.

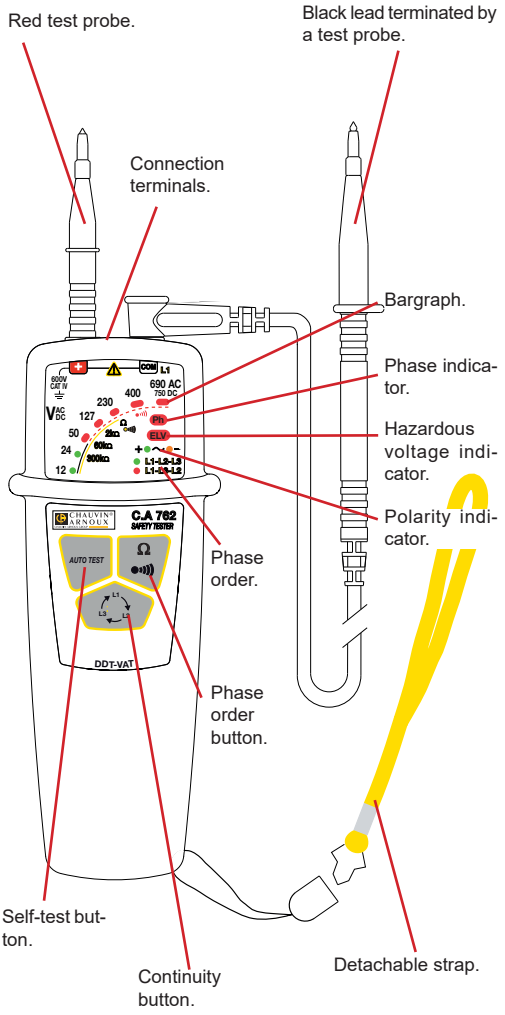
1.1. ACCESSORIES AND OPTIONS

- One red test probe 2mm in diameter
- Black lead with test probe 2mm in diameter
- IP2X accessories
- Carrying bag
- C.A 751 2P+T adapter

For accessories and spare parts, visit our website:
www.chauvin-arnoux.com

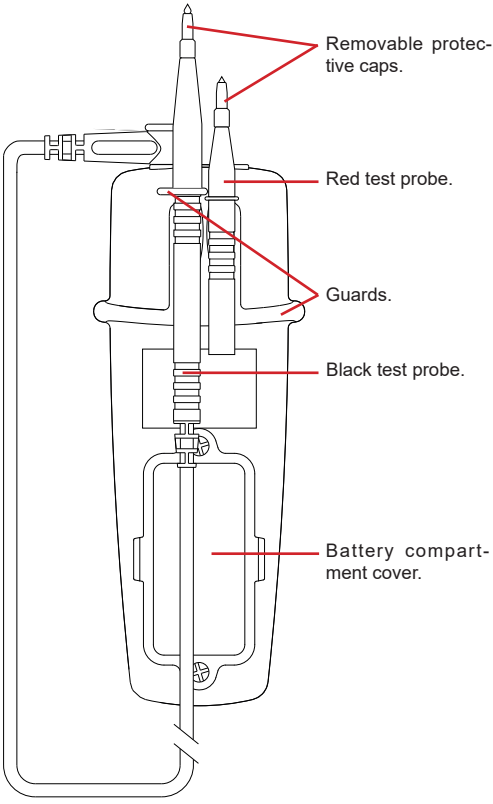
2. PRESENTATION

2.1. C.A 762



2.2. ON THE BACK

When the device is not in use, the test probes can be stowed on the back.



2.3. FUNCTIONS

The C.A 762 is a Voltage Detector with indicator lights.

It complies with the requirements of standard IEC 61243-3.

The main function of the C.A 762 is to test for the absence of any voltage. It detects hazardous voltages, meaning voltages exceeding the ELV (extra low voltage: 50 VAC or 120 VDC).

Its other functions are:

- Indication of a voltage between 12 and 690 VAC or 750 VDC, with indication of the polarity.
- Continuity level quality indication.
- Phase position indication.
- Phase order indication.

The voltages indicated on the C.A 762 are nominal voltages. Make sure that the device will be used on networks at standardized voltages.

3. USE

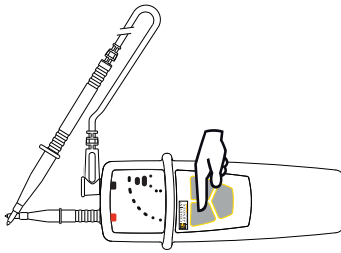
This device is a detector. The indications it provides must not be used for measurement purposes.

3.1. SELF-TEST

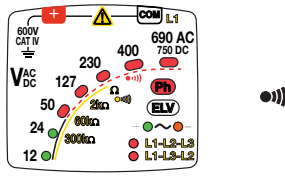
Before using the C.A 762, perform a self-test. This checks the integrity of the leads, the proper operation of the electronic circuit, and the battery voltage.

Connect the red test probe to the + terminal and the black lead to the COM terminal.

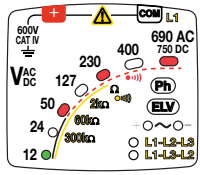
Touch the 2 test probes together and press the **AUTO TEST** button. Press for as long as necessary.



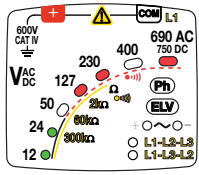
- If all of the indicators of the device except **ELV** light and the audible signal sound, the device is working properly and can be used.



- If every other indicator lights, the batteries must be replaced (see §5.2).



- If every third indicator is off, the leads and test probes need to be checked. Check that they are correctly connected and that the test probes are actually touching, then press the **AUTO TEST** button again.
  If the problem persists, replace the batteries and try again.
  If the problem persists with new batteries, the lead and/or the test probes must be replaced.



- If no indicator lights, replace the batteries (see §5.2). If the problem persists with new batteries, the device is defective and must be sent in for repair.

After each check, perform a self-test in order to confirm the proper operation of the device.

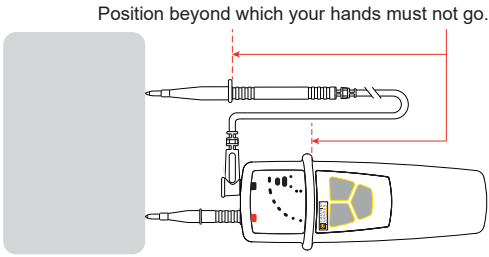
In a noisy environment, make sure that you can in fact hear the audible signal emitted by the device.

Remark: If the **AUTO TEST** button is kept pressed for more than 10 seconds when the test probes are not touching each other, the device switches to standby.

3.2. 2.2. VOLTAGE DETECTION

Connect the red test probe to the + terminal and the black lead to the COM terminal.

Keep your hands behind the guards of the device and of the test probe.

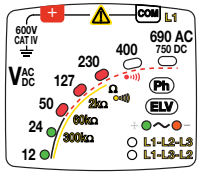


Place the test probes on the element to be tested and maintain a firm contact.

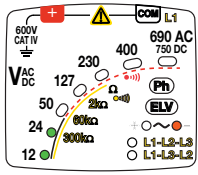
There is no need to switch the C.A 762 on, because it starts up automatically.

If the voltage present is:

- **AC,** the indicators light to indicate its value and the **+** (green) and **-** (orange) indicators light.



- **DC,** the indicators light to indicate its value and the **+** indicator (green) or the **-** indicator (orange) lights to indicate the polarity.

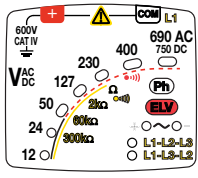


- **hazardous (>50 Vac or 120 Vdc):** the higher the voltage, the faster the **ELV** indicator (red) flashes; the device also emits audible beeps.

ELV: Extra Low Voltage. This redundant indicator indicates that the voltage is greater than the ELV.

The first two indicators of the bargraph are green to indicate that the voltage is not hazardous and the device does not beep. The remaining indicators are red and the device beeps.

If only the **ELV** indicator lights, the batteries are low or missing.



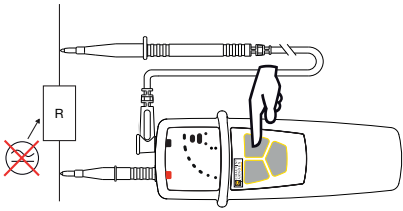
If there is a perturbing voltage near the element being tested, the device may indicate the presence of an operating voltage on the element being tested.

3.3. CONTINUITY LEVEL INDICATION

Connect the red test probe to the **+** terminal and the black lead 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 and maintain a firm contact.



Keep the Ω button pressed.

If no voltage is detected, the C.A 762 performs a continuity test.

If the result is:

- **<100Ω:** the first 5 indicators of the bargraph blink one after another. The device emits a continuous audible signal.
- **Between 100Ω and 2kΩ:** the first 4 indicators of the bargraph light.
- **Between 2kΩ and 60kΩ:** the first 3 indicators of the bargraph light.
- **Between 60kΩ and 300kΩ:** the first 2 indicators of the bargraph light.
- **>300kΩ:** the device displays nothing and does not emit a sound.

3.4. PHASE DETECTION

The C.A 762 performs a unipolar phase detection. This means that connecting a single test probe is enough to determine whether a phase is present.

Warning: Phase detection cannot replace an absence of voltage test.

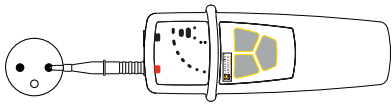
To operate correctly, the phase detection function must be used on networks referred to earth.

It can be used, for example, to locate the phase on an outlet of a network referred to earth.

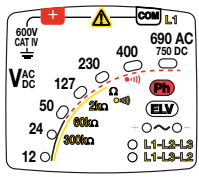
Connect the red test probe to the + terminal

Keep your hands behind the guards of the device

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



If the test probe is in fact on the phase, the **Ph** (phase) indicator flashes and the device beeps.

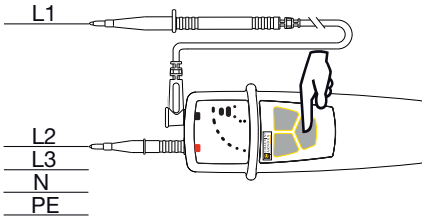


Warning: if the **Ph** indicator is not flashing, that does not mean that there is no hazardous voltage on the outlet.

3.5. PHASE ORDER

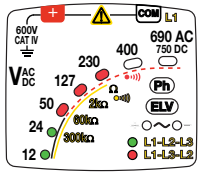
- Place the black test probe on the first phase of the three-phase system and the red test probe on the second phase. The device indicates the voltage present.

- Press the L1 / L3 / L2 button.

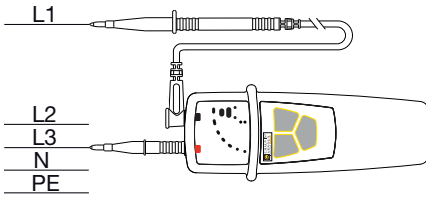


The two indicators, L1-L2-L3 and L1-L3-L2, blink alternately.

Remark: If the voltage is less than 50 VAC or VDC, the function is disabled.



- When the C.A 762 emits two high-pitched beeps, shift the red test probe to the last phase of the system. The device indicates the voltage present.



If there is a problem, in other words, if the device fails to detect a change of phase within 10 seconds or if the phases are not balanced, it reports an error by emitting two low-pitched beeps.

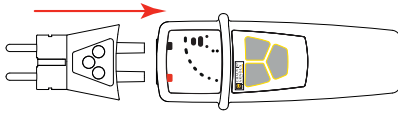
Otherwise, the device indicates the phase order by lighting:
- the L1-L2-L3 indicator and emitting a low-pitched beep, followed by a high-pitched beep,
- or the L1-L3-L2 indicator and emitting a high-pitched beep followed by a low-pitched beep.

3.6. USING THE C.A 751 (OPTION)

If you have purchased a C.A 751 2P+T adapter, you can test for the absence of voltage between the phase and neutral on an outlet.

Attention: Pairing the C.A 762 with the C.A 751 derates the combined product to measurement category II, 250V.

Connect the C.A 751 to the terminals of the C.A 762, then refer to the operating instructions of the CA.751.



Warning: When the C.A 762 is connected to the C.A 751, the continuity <60 and <300kΩ indications are no longer valid.

4. CHARACTERISTICS

4.1. REFERENCE CONDITIONS

Quantity of influence	Reference values
Temperature	23±5°C
Relative humidity	30 to 75 % HR
Supply voltage	3±0,1V
Frequency of the measured signal	DC or 45 to 65 Hz
Type of signal	sinusoidal
External electric field	<1V/m
DC external magnetic field	<40A/m

4.2. ELECTRICAL CHARACTERISTICS

4.2.1. VOLTAGE

Nominal voltages: 12, 24, 50, 127, 230, 400, 690 VAC/VDC and 750 VDC.
Frequency of operation: DC and 16.67 at 800Hz.
Maximum input current: 3.5 mARMS.
Internal impedance at 50 VAC: 850 kΩ.
Response time <500ms.

The indicator corresponding to voltage V lights before the voltage reaches 85% V.

If no indicator lights, the voltage present is < 12V.

The C.A 762 must be used only on networks at standardized voltages.

Operating cycle: 30s (maximum duration for which the device can remain connected to a live element) - 240s (minimum resting time during which the detector must not be connected to a live element).

4.2.2. CONTINUITY AND RESISTANCE

Continuity detection is disabled if a voltage > 1V is present.

The triggering thresholds are:

- 100 Ω<R< 150 Ω
- 2 kΩ<R< 3 kΩ
- 60 kΩ<R< 90 kΩ
- 300 kΩ<R<450 kΩ

Test current ≤1mA
Open-circuit voltage ≤3.3V

4.2.3. PHASE IDENTIFICATION

120 Vac<voltage<690 Vac and 45Hz≤frequency ≤65Hz
400 Vac<voltage<690 Vac and 16.67Hz≤frequency<45Hz

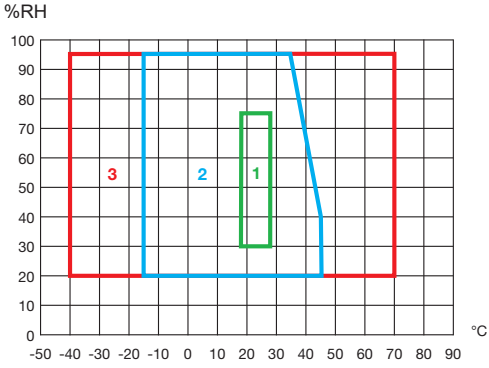
4.2.4. PHASE-ORDER

Frequency between 45 and 400Hz.
Voltage between 50 and 690 Vac between phases.

Time to acquisition of the information after contact ≤1s.
Retention time of the information: 10s.
Acceptable amplitude unbalance: 20%.
Acceptable level of harmonics in voltage: 10%.
Rejection of power company remote control signals (TCC-175Hz-188Hz).

4.3. ENVIRONMENTAL CONDITIONS

The device is of type N. It must be used under the following conditions:



1: Reference domain
2: Operating range
-15 to +45°C and 20 to 95% RH without condensation.
(35°C max. at 95% RH)
3: Range in storage (without batteries)
-40 to +70°C and 20 to 95% RH without condensation.

If an extended period of non-use is anticipated, or for storage, withdraw the batteries from the housing.

For use indoors and outdoors.
Pollution degree: 2.
Altitude: <2000m.

4.4. ALIMENTATION

The C.A 762 is powered by two 1.5V alkaline batteries (type AAA or LR3).

Batteries mass: about 2 x 26 g

The battery life is 7,000 10-second measurements.

The batteries can be replaced by rechargeable batteries, but the life between charges will be much shorter.

4.5. CHARACTERISTICSOFCONSTRUCTION

Dimensions (LxWxH)	163 x 64 x 40mm
Mass	approximately 210g
Cord	length 90cm
Protection class	IP65 per IEC 60529 IK04 per IEC 62262
Drop	2 metres

4.6. COMPLIANCE WITH INTERNATIONAL STANDARDS

Two-pole voltage detector per IEC 61243-3 ed. 3 of 2015.

The device is in conformity with IEC/EN 61010-1 or BS EN 61010-1 600V, CAT IV.

4.7. ELECTROMAGNETIC COMPATIBILITY

Emissions and immunity in an industrial setting compliant with IEC/EN 61326-1 or BS EN 61326-1.

5. 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.**

5.1. CLEANING

The device must be kept perfectly clean.

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.

5.2. REPLACEMENT OF BATTERIES

If, during the self-test, only half of the indicators light, you must replace the batteries.

- Disconnect anything connected to the device.
- Using a screwdriver, unscrew the two captive screws of the battery compartment cover located on the back of the device.
- Withdraw the spent batteries and replace them with two new batteries (AAA or LR3 1.5V alkaline batteries).
- Close the battery compartment cover and make sure that it is completely and correctly closed.
- Screw the two screws back in.

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

6. 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 is available on our website.
www.chauvin-arnoux.com/en/general-terms-of-sale

The warranty does not apply in the following cases:

- Inappropriate use of the 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 device by a person not approved by the manufacturer;
- Adaptation to a particular application not anticipated in the definition of the equipment or not indicated in the user's manual;
- Damage caused by shocks, falls, or floods.

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