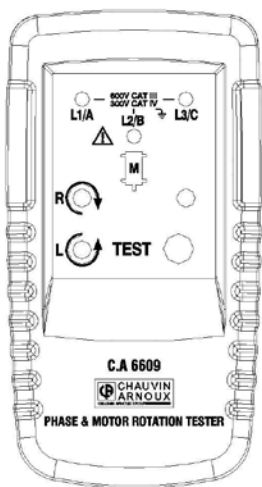


- § **Testeur de sens moteur et rotation de phases**
- § **Motor and Phase rotation indicator**
- § **Drehfeldrichtungsanzeiger**
- § **Tester di senso motore e rotazione delle fasi**
- § **Comprobador de sentido de motor y rotación de fases**

# C.A 6609



FRANÇAIS  
ENGLISH  
DEUTSCH  
ITALIANO  
ESPAÑOL

Notice de fonctionnement  
User's manual  
Bedienungsanleitung  
Manuale d'uso  
Manual de instrucciones



**ALAT UJI**  
Products, Solution, Services








## English

You have just purchased a **CA 6609** motor and phase rotation indicator and we thank you for your confidence.

For best results from your device:

- **read** this user manual attentively,
- **observe** the precautions for its use.

## Meaning of the symbols used on the instrument

	Warning, possible hazard. Please refer to the user's manual.
	Correct orientation of the motor when positioning the instrument.
	Battery
	Instrument protected by double insulation.
	The CE marking guarantees compliance with European directives and with the regulations governing EMC.
	Selective sorting of wastes for the recycling of electrical and electronic equipment within the European Union. In conformity with directive WEEE 2002/96/EC: this equipment must not be treated as household waste.
	Earth.

## English

This instrument can be used on category III electrical circuits not exceeding 600V with respect to earth. It must be used indoors, in an environment not exceeding pollution level 2, at an altitude of not more than 2000m. The instrument can therefore be used in complete safety on 400V three-phase networks in an industrial environment.

- § For safety reasons, you must use only measurement leads having a voltage rating and category at least equal to those of the instrument and compliant with standard IEC 61010-031.
- § Do not use if the cover of the battery compartment is missing or if the housing is damaged or not correctly closed.
- § Do not place your fingers near unused terminals.
- § If the instrument is used other than as specified in this manual, the protection provided by the instrument may be impaired.
- § Do not use this instrument if it seems to be damaged.
- § Check the integrity of the insulation of the leads and of the housing. Replace damaged leads.
- § Be prudent when working in the presence of voltages exceeding 70Vdc or 33Vrms and 46.7Vpp; such voltages can cause a risk of electrocution. The use of individual protections is recommended in some cases.
- § Always keep your hands behind the physical guards of the probe tips or alligator clips.
- § Always disconnect all leads from the measurement and from the instrument before opening the housing.
- § Always use the specified type of battery.

## 2. UNPACKING - PACKAGING

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All instruments undergo mechanical and electronic testing before being dispatched. Every precaution is taken to ensure that the instrument reaches you in good condition. If there is any damage, inform the carrier immediately.

## 3. INTRODUCTION

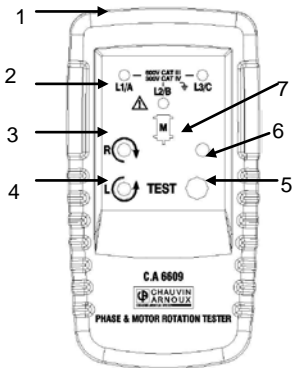
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The CA 6609 is designed to facilitate installing three-phase electrical power supply networks and combines the following functions in a single instrument:

- § Determination of the direction of phase rotation;
- § Presence or absence of phase ( if voltage between phases and neutral is  $> 100V$ );
- § Determination of the direction of rotation of a motor with or without connection;
- § Determination of the activation of a solenoid valve without connection.

English

## 4. DESCRIPTION OF THE INSTRUMENT



- 1 Test lead input terminals
- 2 Indicators L1, L2, and L3
- 3 Green Clockwise rotation led
- 4 Red Anticlockwise rotation led
- 5 On/Off button
- 6 Green On led
- 7 Symbol for CA 6609 correct orientation on the motor (§ 6)

## 5. USING THE INSTRUMENT

### 5.1 DIRECTION OF PHASE ROTATION






























On a three-phase electrical network:

1. Connect the 3 leads to the instrument, matching the markings.
2. Connect the 3 alligator clips to the 3 phases of the network to be tested.
3. Press the ON button. The green indicator indicates that the instrument is in operation.
4. The clockwise (or anticlockwise) rotation indicator indicates the direction of phase rotation.




English

Warning: the wrong direction of rotation may be displayed if a lead is connected by mistake to the neutral of the network.

The table below (reproduced on the back of the instrument) summarizes the various display possibilities.

	● ON    ○ NOT DEFINED				
	○ OFF		A	B	C
DISPLAY			L1	L2	L3
 CORRECT					
 FALSE					
L1 MISSING					
L2 MISSING					
L3 MISSING					

**Un = 230VAC**  
**Ume = 40...600VAC**  
**Fn = 15...400Hz**  
 **$I_{L1} = I_{L2} = I_{L3} \approx 3.5\text{mA}/400\text{V}$**   
**CONTINUOUS OPERATION**  
**IEC 61557-7**  
**1 X 9V, IEC 6LR01**

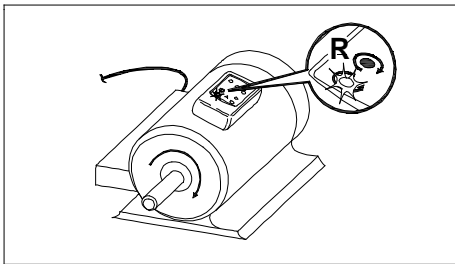




English

## 6. INDICATION OF THE DIRECTION OF THE ROTATING FIELD OR DIRECTION OF ROTATION WITHOUT CONNECTION

1. There must be no lead connected to the instrument;
2. Position the instrument on the motor, within 2.5 cm, parallel to the shaft in the direction indicated by the symbol on the front panel.
3. Press the ON button. The green indicator indicates that the instrument is in operation.
4. The clockwise or anticlockwise rotation indicator lights to indicate the direction of the rotating field.

**Note:** the instrument does not work on motors controlled by frequency converters.



The table below summarizes the conditions necessary to obtaining a reliable test result.

Number of pairs of poles	Number of rotations of the rotating field (per minute) as a function of frequency (Hz)			Angle between poles	Minimum dia. of the motor casing
	16 2/3	50	60		
1	1000	3000	3600	0	cm
2	500	1500	1800	60	5.3
3	333	1000	1200	30	10.7
4	250	750	900	20	16.0
5	200	600	720	15	21.4
6	167	500	600	12	26.7
8	125	375	450	10	32.1
10	100	300	360	7.5	42.8
12	83	250	300	6	53.5
16	62	188	225	5	64.2
				3.75	85.6

## **7. DETERMINATION OF THE DIRECTION OF CONNECTION OF THE PHASE WIRES TO A MOTOR**

1. Connect the 3 leads to the instrument, matching the markings;
2. Connect the 3 alligator clips to the 3 phase pins of the connector of the motor being tested;
3. Press the ON button. The green indicator indicates that the instrument is in operation;
4. Turn the motor shaft a half-turn to the right;
5. The clockwise or anticlockwise rotation indicator lights, indicating whether or not the order of connection of the phase wires is correct.



English

## 8. INDICATION WITHOUT CONNECTION OF THE ACTIVATION OF A SOLENOID VALVE

1. There must be no lead connected to the instrument;
2. Place the instrument as close as possible to the solenoid valve;
3. Press the ON button. The green indicator indicates that the instrument is in operation;
4. The clockwise or anticlockwise rotation indicator lights, indicating the presence of the field generated during the activation.

## 9. TECHNICAL SPECIFICATIONS

### 9.1 ELECTRICAL CHARACTERISTICS

Maximum rated voltage: 600V, CAT III

Operating voltage, in phases rotation use:

With connections: 40 to 600V<sub>AC</sub> between phases (see § 5.1 and 7)

Without connection: 120 to 400V<sub>AC</sub> between phases (see § 6)

Frequency of operation: 15 to 400Hz

Test current (per phase): less than 3.5mA

Power supply: 9V battery (6LR61, 6LF222, 1604A, NEDA 1604)

Consumption less than 20mA.

L1, L2, L3 lights are on, since 100V voltage between phases and neutral.

## 9.2 MECHANICAL CHARACTERISTICS

Dimensions (H x L x D): 130 x 69 x 32mm  
Weight: 170g

## 9.3 ENVIRONMENTAL CHARACTERISTICS

Operating temperature: 0 to 40°C  
Storage: -20°C < T < +50°C, RH < 80%  
Operating relative humidity: 15 to 80%  
Operating altitude: less than 2000 m  
Operating pollution level: less than 2

## 9.4 COMPLIANCE WITH STANDARDS

IEC 61010-1, DIN VDE 0411;  
IEC 61557-7, DIN VDE 0413-7;  
Tightness: IP 40 (as per IEC 60529)

# 10. MAINTENANCE

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## 10.1 CLEANING

Disconnect from all sources of electricity before cleaning, servicing, dismantling.

Clean only with a soft cloth moistened with soapy water, then plain water.

Dry completely and perfectly before using again.

*English*

## **10.2 REPLACING THE BATTERY**

To replace the battery, proceed as follows:

1. Disconnect the leads from the measurement source and from the instrument;
2. Loosen the screw at the bottom of the back of the instrument;
3. Remove the cover from the battery compartment;
4. Replace the battery and attach the cover using the screw.

Reminder: for your safety, never use the instrument if the battery compartment cover is missing, damaged, or incorrectly installed.

## **10.3 STORAGE**

If the instrument will be out of use for a long period, it is best to store the instrument and the battery separately.

## **10.4 METROLOGICAL CHECK**

Like all measuring or testing devices, the instrument must be checked regularly.

This instrument should be checked at least once a year. For checking and calibration, contact one of our accredited metrology laboratories (information and contact details available on request), at our Chauvin Arnoux subsidiary or the branch in your country.

## 11. WARRANTY

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This instrument is warranted against defects of materials and workmanship, in conformity with the general conditions of sale. During the warranty period (1 year), the instrument must be repaired only by the manufacturer, who reserves the right to repair the instrument or to replace it in whole or in part.

The warranty does not cover the following cases:

1. improper use of the instrument or use with incompatible equipment;
2. changes made to the instrument without the explicit permission of the manufacturer's technical department;
3. work done on the instrument by persons not authorized by the manufacturer;
4. adaptation to a specific application not anticipated in the definition of the instrument or the user's manual;
5. shocks, falls, or immersion.

## 12. REPAIR

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For all repairs before or after expiry of warranty, please return the device to your distributor.

English

## 13. PER ORDER

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Motor and phase rotation indicator CA6609..... P01191305

Delivered with the following items:

- 3 test leads - black, red, blue
- 3 alligator clips - black
- Carrying bag,
- User's manual.