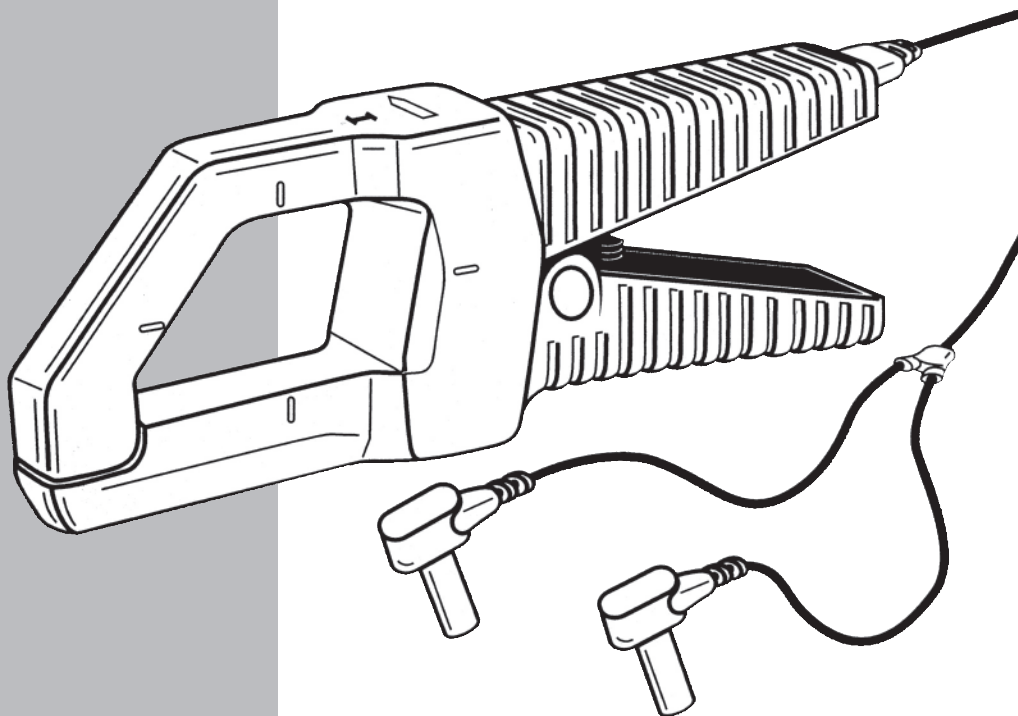


 **海洋儀器**

致力于电子测试、维护领域!

# Y4N



User's manual

 **CHAUVIN  
ARNOUX**

Meaning of the symbol 

**Warning ! Consult the user's manual before using the instrument.**

In this User's Manual, the instructions preceded by the above symbol, should they not be carried out as shown, can result in a physical accident or damage the instrument and the installations.

Thank you for your support through your purchase of an **Y4N current clamp**.

To get the optimum use from this equipment:

- **read** this user manual carefully,
- **follow** the Safety Precautions.

## **SAFETY PRECAUTIONS**

- Do not use to measure currents exceeding 600 A. and limit the operating time from 500 A (see 4.3.1 Overloads).
- Do not use on uninsulated conductors with potentials higher than 600 V with respect to earth.
- For indoor use only.
- Do not expose to falling water.
- Do not use at altitudes of over 2000 m.
- Keep the air gap perfectly clean (see 5.1).

## TO ORDER

**Y4N current clamp** ..... **P01.1200.05A**

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# 1. INTRODUCTION

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The Y4N 1 mV DC/A AC current clamp is designed for alternating current measurements in low-voltampere systems, from 2 A to 500 A AC (up to 600 A AC max - see chapter 4.3.1).

The asymmetrically shaped jaws clamp around cables or busbars.

The Y 4N connects to any multimeter, recorder, etc. having a DC voltage input with an impedance of 10 M $\Omega$  or more.

It features dual or reinforced insulation and conforms to international standards, such as EN 61010-2-032 "Current clamps" (see chapter 4.4).

## 2. DESCRIPTION

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*(See drawing § 7. Appendix)*

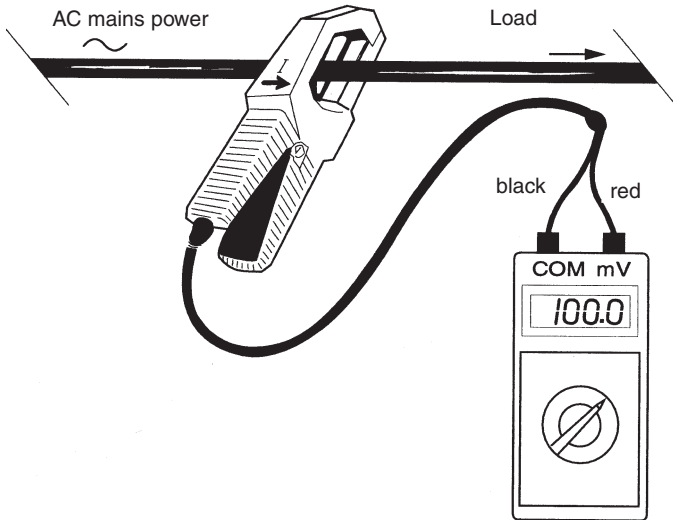
Overall dimensions: 195 x 66 x 34 mm

Weight: 420 g

- ① Jaw opening: 33 mm  
Height with jaws open: 96 mm
- ② 4 centring marks  
Max clamping capacity: 30 mm dia. cable and 63 x 5 mm busbar
- ③ I arrow indicating the direction of current flow. The current is considered to flow in the positive direction when flowing from the "current producer" to the "current consumer". This orientation of the current clamp is required during a power measurement (current measured concurrently with voltage).
- ④ Cable length: 1,5 m
- ⑤ Output via two 4 mm dia. safety elbow plugs.

### 3. UTILISATION

- ⚠ Before connecting the current clamp to the multimeter, check that the multimeter has an impedance  $\geq 10\text{ M}\Omega$  for the mV DC and V DC ranges.
- ⚠ Open the jaws and clamp the cable carrying the current to be measured. Centre the cable using the marks. Observe the direction of the I arrow if required by the application.
- ⚠ To read the measured current, apply the appropriate reading coefficient for the range selected on the multimeter. The current clamp delivers 1 mV DC for a current of 1 A AC.



- ⚠ From 500 A to 600 A, limit the current clamp operating time: 10 minutes on and 30 minutes off.

# 4. SPECIFICATIONS

## 4.1 Reference conditions

- Temperature: 18 to 28°C
  - Relative humidity: 20 to 75%
  - Conductor centred in the jaws
  - Sinusoidal current: 48 to 65 Hz
  - No direct current
  - Instrument impedance:  $Z \geq 10 \text{ M}\Omega$
  - Direct-current magnetic field: earth's magnetic field ( $< 40 \text{ A/m}$ )
  - External conductor proximity: no direct or alternating current
  - Intrinsic error or phase difference
- NOTE: Linear interpolation between each value (see also the graphs in chapter 7. APPENDIX)

Current to be measured	in AC	2 A	25 A	100 A	250 A	500 A	600 A (2)
	in % of $I_n$	0.4%	5%	20%	50%	$I_n$	120%
Intrinsic error (1)		5% +0.5 mV	5%	2%	1%		2%

(1)  $I_n \pm \%$  of the output

(2) See 4.3.1 Overloads

## 4.2 Measurement range

Current range	2 A...600 A~ (1)
Output-to-input ratio	1 mV DC/1 A AC
Frequency range	48 to 1000 Hz

(1) See 4.3.1 Overloads

- Nominal current ( $I_n$ ): 500 A AC
- Multimeter impedance:  $\geq 10 \text{ M}\Omega$

## 4.3 Operating conditions and influences

⚠ The current clamp must be used under the following conditions to meet the user safety and measuring performance requirements.

### 4.3.1 Overloads

Limit the operating time above 500 A

Current	$I \leq 500 \text{ A AC}$	$500 \text{ A AC} < I \leq 600 \text{ A AC}$
Working	continuous operation	10 minutes on 30 minutes off

### 4.3.2 Influence on frequency

Values to be added to the reference conditions.

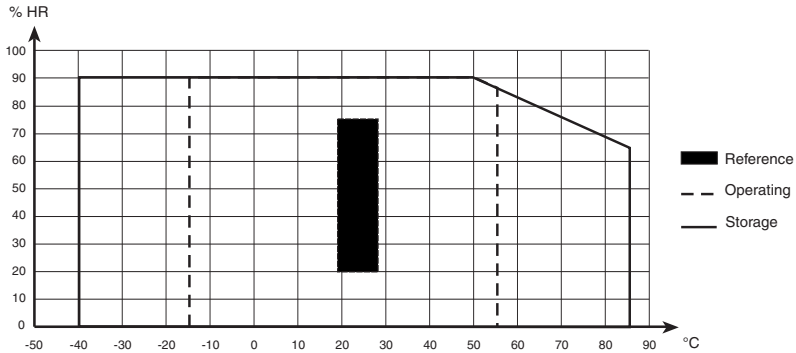
**NOTE:** linear interpolation between each specified value (see also the graphs in chapter 7 APPENDIX).

Frequency		65 Hz to 1000 Hz					
Current to be measured	in A AC	2 A	25 A	100 A	250 A	500 A	600 A
	in % of In	0.4%	5%	20%	50%	In	120%
Error to be added		4.5% +1 mV	4.5%	3%	2%	1%	2%

### 4.3.3 Environmental conditions

- Indoor use
- Altitude: ≤ 2 000 m
- Transportation altitude: ≤ 12 000 m
- Temperature influence: < 0.1% / 10°C

#### ■ Climatic conditions:



## 4.4 Conformity to international standards

### 4.4.1 Electrical safety (in accordance with NF EN 61010-2-032)

- Dual insulation
- Pollution degree 2
- Installation category III
- Working voltage: 600 V rms

### 4.4.2 Compatibilité électromagnétique

- Emission: meets EN 50081-1
- Immunity: meets EN 50082-2

An influence ≤ 10% of the output signal is accepted for the test of immunity to radiated fields in the 110 - 120 MHz and 170 - 180 MHz frequency bands

#### 4.4.3 Mechanical protection


- Degree of protection IP20 (i.a.w. IEC 529) with jaws closed
- Free fall: 1.5 m (i.a.w. IEC 68-2-32)
- Shock: 100 g (i.a.w. IEC 68-2-27)
- Vibration: 0.15 mm -10/55/10 Hz (i.a.w. IEC 68-2-6)

#### 4.4.4 Flammability rating


- V0 (i.a.w. UL 94)

## 5. MAINTENANCE

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 **For maintenance, use only specified spare parts. The manufacturer will not be held responsible for any accident occurring following a repair done other than by its After Sales Service or approved repairers.**

### 5.1 Cleaning

 **The clamp must be disconnected from all electrical sources and not enclose a cable. Do not subject the clamp to running water.**

- Keep the jaw faces perfectly clean. The jaw faces must be cleaned with a lightly oiled soft cloth.
- Clean the case with a cloth slightly moistened with soapy water.  
Rinse with a dry cloth. Then dry quickly with a cloth or in a hot air stream ( 80 °C max.)

### 5.2 Metrological verification

 **It is essential that all measuring instruments are regularly calibrated.**

For occasional daily use, we recommend that an annual calibration be carried out.

When the instrument is used continuously every day, we recommend that a calibration is carried out every 6 months.

For checking and calibration of your instrument, please contact our accredited laboratories (list on request) or the Chauvin Arnoux subsidiary or Agent in your country.

#### Repairs

Repairs under or out of guarantee: please return the product to your distributor.

## 6. WARRANTY

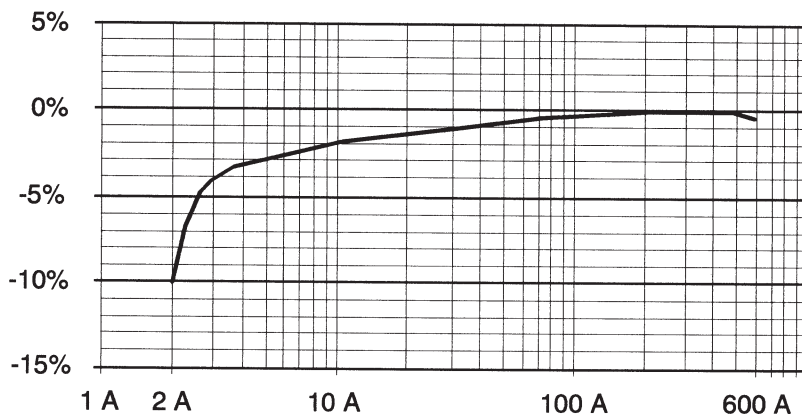
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Our guarantee is applicable for **twelve months** after the date on which the equipment is made available (extract from our General Conditions of Sale, available on request).



## 7. ANNEXE / APPENDIX / ANHANG ALLEGATO / ANEXO

- Erreur typique (en %) en fonction du courant primaire (en A), a 50 Hz
- Typical error (in %) versus primary current (in A) at 50 Hz
- Typischer Fehler (in %) in Abhängigkeit vom Primärstrom (in A) bei 50 Hz
- Errore tipico (in %) in funzione della corrente primaria (in A), 50 Hz
- Error típico (en %) en función de la corriente del primario (en A), a 50 Hz



- Erreur typique (en %) en fonction de la fréquence (en Hz) pour un courant primaire de 100 A, sur une charge de 10 MΩ
- Typical error (in %) versus frequency (in Hz) at a primary current of 100 A into a load of 10 MΩ
- Typischer Fehler (in %) in Abhängigkeit van der Frequenz (in Hz), bei einem Primärstrom van 100 A und einer Lastimpedanz von 10 MΩ
- Errore tipico (in %) in funzione della frequenza (in Hz), per una corrente primaria 100 A con un carico di 10 MΩ
- Error típico (en %) en función de la frecuencia (en Hz) para una corriente del primario de 100 A e una carga de 10 MΩ

