



## AmpFLEX™ Series

These flexible current probes are as equally at home measuring low AC currents of a few hundred mA's as they are measuring high currents of several tens of kA's.

Their main point of interest is their flexibility and the ease with which electrical conductors of all shapes and sizes (cables, bus bars) and degrees of accessibility can be gripped.

They have a number of other strong points; they are light weight (having no magnetic circuit), they do not suffer from the saturation effect and their high level of accuracy combined with minimal phase shift make them perfect for power measurement applications.

AmpFLEX A100 :

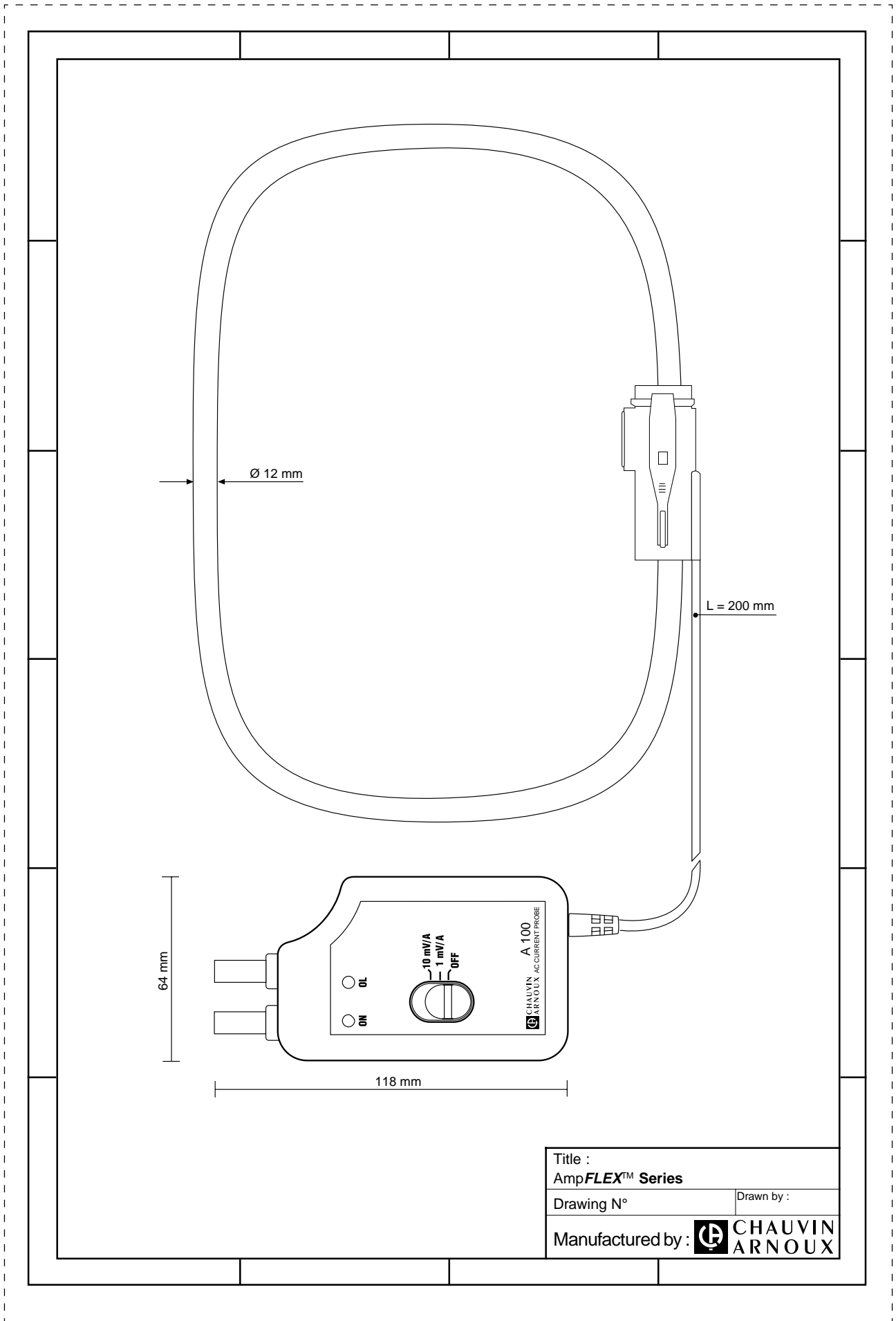
- The A100 (pictured above) has a flexible toroid which connects, via a screened lead, to a small


unit containing all the processing electronics and a standard 9 V battery.

The unit can be connected directly to any multimeter, wattmeter or recording device. With either one or two ranges, the A100's give an AC voltage output of 0.1 – 1 – 10 or 100 mV/A. As well as the standard models (48, 80, or 120 cm's), there are also models available on request where you can choose the sensor length and sensitivity.

AmpFLEX A101 :

- The A101 has exactly the same specification as the A100's but comes without the electronic unit. These sensors are thus used by other manufacturers and integrated into their own test and measurement products.



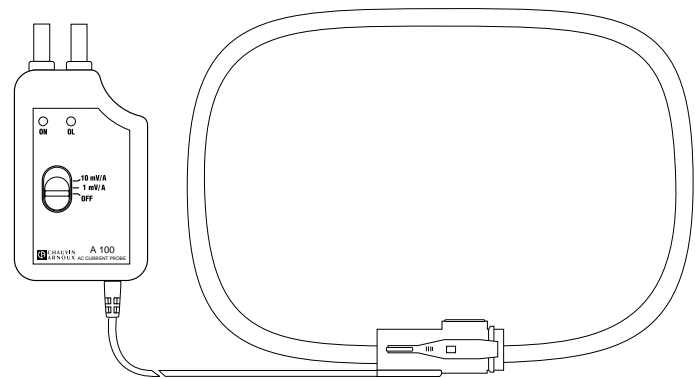
Title : <b>AmpFLEX™ Series</b>	
Drawing N°	Drawn by :
Manufactured by :  <b>CHAUVIN ARNOUX</b>	

# Flexible AC current probe

## Model A100 20-200/2

AmpFLEX™ Series

<b>Current</b>	20 A AC	200 A AC
<b>Output</b>	100 mV/A	10 mV/A



### Electrical specifications

#### Current range :

0.5...20 A AC  
0.5...200 A AC

#### Output signal :

100 mV AC/A AC (2 V at 20 A)  
10 mV AC/A AC (2 V at 200 A)

#### Accuracy (1) :

Range	20 A		200 A	
	0.5...5 A	5...20 A	0.5...5 A	0.5...200 A
Primary current	0.5...5 A	5...20 A	0.5...5 A	0.5...200 A
% accuracy of output signal	not specified	≤ 1%	not specified	≤ 1%
Phase shift	≤ 1.3°	≤ 1.3°	≤ 1.3°	≤ 1.3°

#### Bandwidth :

10 Hz...20 kHz

#### Crest factor :

2.25 at nominal current

#### Max. current / Max. output voltage :

No current limit, however maximum output is 4.5 V peak.

#### Load impedance : ≥ 1 MΩ

#### Influence of Z load impedance :

≤ 0.1%/Z, (Z in MΩ)

#### Output impedance :

1 kΩ

#### DC voltage shift at output :

20 A range : ≤ 50 mV DC  
200 A range : ≤ 5 mV DC

#### Working voltage :

1000 V rms

#### Influence of adjacent conductor :

≤ 1% interference current at 50 Hz  
(≤ 2% near catch)

#### Influence of conductor position in the loop :

≤ 1% (≤ 4% near catch)

#### Influence of sensor shape :

≤ 1% for an oblong shape

#### Supply :

9V alkaline battery (NEDA 1604A, IEC 6LR61)

#### Battery life :

≥ 150 hrs continuous  
≥ 1000 x 1 min measurements

#### Low Battery signal :

Green LED : battery is OK  
Green LED flashes : battery nearly worn out  
No green LED : battery totally worn out

#### Overload signal : red LED

### Mechanical specifications

#### Working temperature :

-10° to +55°C, (maximum temperature for sensor is 90°C)

#### Storage temperature :

-40° to +70°C

#### Temperature influence :

≤ 0.5% of output signal per 10 K

#### Operating humidity :

for 0 to 95% of RH with linear decrease beyond 35°C

#### Influence of humidity :

< 0.2% of output signal from 10% to 85% of RH

#### Operating altitude :

0...2000 m

#### Casing protection :

Case : IP 40 (IEC 529)  
Flexible sensor : IP65 (IEC 529)

#### Drop test : 1 m (IEC 68-2-32)

#### Shock resistance :

100 g (IEC 68-2-27)

#### Vibration :

5/15/5 1.5 mm - 15/25/15 1 mm - 25/55/25 0.25 mm (IEC 68-2-6)

#### Self-extinguishing ability :

Case, flexible sensor and catch unit :  
UL94 V0

#### Dimensions :

Case : 140 x 64 x 28 mm  
Connector lead : 2 m (connects sensor to case)  
Flexible sensor : Ø 12 mm ±0.5 mm

#### Weight :

Case : < 200 g  
Flexible sensor : approx. 30 g per 10 cm length

#### Bending radius : ≥ 15 mm

#### Colours :

Case and connection lead : dark grey, red flexible sensor with dark grey catch unit

#### Output :

2 safety jacks (4mm) spacing 19 mm

### Safety specifications

#### Electrical :

Double insulation or reinforced insulation between primary, secondary and outer parts of case normally handled, IEC 1010-1-1000V category III, pollution 2

#### Electromagnetic compatibility (EMC Mark) :

EN 50081-1 : in conformity  
EN 50082-2 :  
Electrostatic discharge : IEC 1000-4-2  
Radiated field : IEC 1000-4-3  
Fast transients : IEC 1000-4-4  
Electrical shocks : IEC 1000-4-5  
Magnetic field at 50/60 Hz : IEC 1000-4-8

(1) Reference conditions : 23 °C ± 5°K, 20 to 75 % RH, battery voltage : 9 V ± 0.5 V, external magnetic field < 40 A/m, no external magnetic or electrical field, test sample centered sinusoidal signal : 10...100 Hz.

Ordering information	Reference
AmpFLEX™ 20-200/2, length 45 cm including user's manual	P01.1205.03

# Flexible AC current probe

## Model A100 2000/2

AmpFLEX™ Series

<b>Current</b>	2000 A AC
<b>Output</b>	1 mV/A

### Electrical specifications

#### Current range :

0.5...2000 A AC

#### Output signal :

1 mV AC/A AC (2 V at 2000 A)

#### Accuracy (1) :

Primary current	0.5...5 A	5...2000 A
% accuracy of output signal	not specified	≤ 1%
Phase shift	≤ 0.7°	≤ 0.7°

#### Bandwidth range :

10 Hz...20 kHz

#### Crest factor :

2.25 at nominal current

#### Max. current / Max. output voltage :

No current limit, however maximum output is 4.5 V peak.

#### Load impedance : ≥ 1 MΩ

#### Influence of Z load impedance :

≤ 0.1%/Z, (Z in MΩ)

#### Output impedance :

1 kΩ

#### DC voltage shift at output :

≤ 2 mV DC

#### Working voltage :

1000 V rms

#### Influence of adjacent conductor :

≤ 1% of interference current at 50 Hz (≤ 2% near catch)

#### Influence of conductor position in the loop :

≤ 1% (≤ 4% near catch)

#### Influence of sensor shape :

≤ 1% for an oblong shape

#### Supply :

9 V alkaline battery (NEDA 1604A, IEC 6LR61)

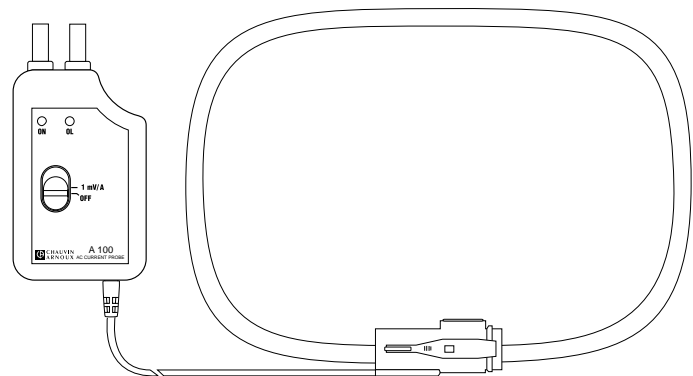
#### Battery life :

≥ 150 hrs continuous,  
≥ 1000 x 1 min measurements

#### Low Battery signal :

Green LED : battery is OK  
Green LED flashes : battery nearly worn out  
No green LED : battery totally worn out

#### Overload signal : red LED



### Mechanical specifications

#### Working temperature :

-10° to +55°C, (maximum temperature for sensor is 90°C)

#### Storage temperature :

-40° to +70°C

#### Temperature influence :

≤ 0.5% of output signal per 10 K

#### Operating humidity :

for 0 to 95% of RH with linear decrease beyond 35°C

#### Influence of humidity :

< 0.2% of output signal from 10% to 85% of RH

#### Operating altitude :

0...2000 m

#### Casing protection :

Case : IP 40 (IEC 529)  
Flexible sensor : IP65 (IEC 529)

#### Drop test : 1 m (IEC 68-2-32)

#### Shocks resistance :

100 g (IEC 68-2-27)

#### Vibrations :

5/15/5 1.5 mm - 15/25/15 1 mm - 25/55/25 0.25 mm (IEC 68-2-6)

#### Self-extinguishing ability :

Case, flexible sensor and catch unit :  
UL94 V0

#### Dimensions :

Case : 140 x 64 x 28 mm  
Connector lead : 2 m (connects sensor to case)  
Flexible sensor : Ø 12 mm ±0,5 mm

### Weight :

Case : < 200 g  
Flexible sensor : approx. 30 g per 10 cm length

### Bending radius : ≥ 15 mm

### Colours :

Case and connection leads : dark grey, red flexible sensor with dark grey catch unit

### Output :

2 safety jacks (4mm) spacing 19 mm

### Safety specifications

#### Electrical :

Double insulation or reinforced insulation between primary, secondary and outer parts of case normally handled, IEC 1010-1- 1000V category III, pollution 2

#### Electromagnetic compatibility (EMC Mark) :

EN 50081-1 : in conformity  
EN 50082-2 :  
Electrostatic discharge : IEC 1000-4-2  
Radiated field : IEC 1000-4-3  
Fast transients : IEC 1000-4-4  
Electrical shocks : IEC 1000-4-5  
Magnetic field at 50/60 Hz : IEC 1000-4-8

(1) Reference conditions : 23 °C ± 5°K, 20 to 75 % RH, battery voltage : 9 V ± 0.5 V, external magnetic field < 40 A/m, no external magnetic or electrical field, test sample centered sinusoidal signal : 10...100 Hz.

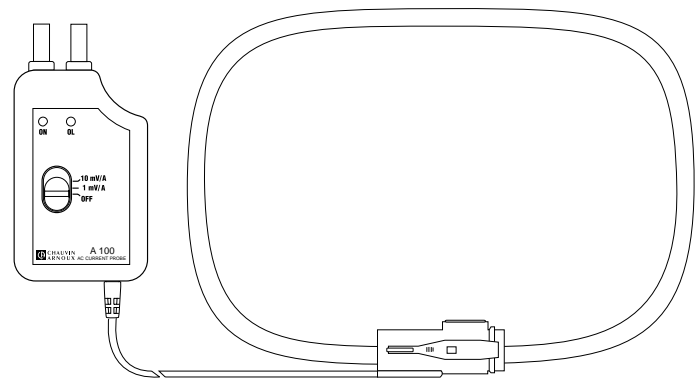
Ordering information	Reference
AmpFLEX™ 2000/2, length 45 cm including user's manual	P01.1205.01
AmpFLEX™ 2000/2, length 80 cm including user's manual	P01.1205.02

# Flexible AC current probe

## Model A100 200-2000/2

AmpFLEX™ Series

<b>Current</b>	200 A AC	2000 A AC
<b>Output</b>	10 mV/A	1 mV/A



### Electrical specifications

#### Current range :

0.5...200 A AC  
0.5...2000 A AC

#### Output signal :

10 mV AC/A AC (2V at 200 A)  
1 mV AC/A AC (2 V at 2000 A)

#### Accuracy (1) :

Range	200 A		2000 A	
	0.5...5 A	5...200 A	0.5...5 A	0.5...2000 A
Primary current	0.5...5 A	5...200 A	0.5...5 A	0.5...2000 A
% accuracy of output signal	not specified	≤ 1%	not specified	≤ 1%
Phase shift	≤ 0.7°	≤ 0.7°	≤ 0.7°	≤ 0.7°

#### Bandwidth :

10 Hz...20 kHz

#### Crest factor :

2.25 at nominal current

#### Max. current / Max. output voltage :

No current limit, however maximum output is 4.5V peak.

#### Load impedance : ≥ 1 MΩ

#### Influence of Z load impedance :

≤ 0.1%/Z, ( in MΩ)

#### Output impedance :

1 kΩ

#### DC voltage shift at output :

200 A range : ≤ 5 mV DC

2000 A range : ≤ 2 mV DC

#### Working voltage :

1000 V rms

#### Influence of adjacent conductor :

≤ 1% of interference current at 50 Hz  
(≤ 2% near catch)

#### Influence of conductor position in the loop :

≤ 1% (≤ 4% near catch)

#### Influence of sensor shape :

≤ 1% for an oblong shape

#### Supply :

9 V alkaline battery (NEDA 1604A, IEC 6LR61)

#### Battery life :

≥ 150 hrs continuous,  
≥ 1000 x 1 min measurements

#### Low Battery signal :

Green LED : battery is OK

Green LED flashes : battery nearly worn out

No green LED : battery totally worn out

#### Overload signal : red LED

### Mechanical specifications

#### Working temperature :

-10° to +55°C (maximum temperature for sensor is 90°C)

#### Storage temperature :

-40° to +70°C

#### Temperature influence :

≤ 0.5% of output signal per 10 K

#### Operating humidity :

fro 0 to 95% of RH with linear decrease beyond 35°C

#### Influence of humidity :

< 0.2% of output signal from 10% to 85% of RH

#### Operating altitude :

0...2000 m

#### Casing protection :

Case : IP 40 (IEC 529)  
Flexible sensor : IP65 (IEC 529)

#### Drop test : 1 m (IEC 68-2-32)

#### Shock resistance :

100 g (IEC 68-2-27)

#### Vibration :

5/15/5 1.5 mm - 15/25/15 1 mm - 25/55/25  
0.25 mm (IEC 68-2-6)

#### Self-extinguishing ability :

Case, flexible sensor and catch unit :  
UL94 V0

#### Dimensions :

Case : 140 x 64 x 28 mm

Connector lead : 2 m (connects sensor to case)

Flexible sensor : Ø 12 mm ±0,5 mm

#### Weight :

Case : < 200 g

Flexible sensor : approx. 30 g per 10 cm length

#### Bending radius : ≥ 15 mm

#### Colours :

Case and connection leads : dark grey, red  
flexible sensor with dark grey catch unit

#### Output :

2 safety jacks (4mm) spacing 19 mm

### Safety specifications

#### Electrical :

Double insulation or reinforced insulation between primary, secondary and outer parts of case normally handled, IEC 1010-1-1000V category III, pollution 2

#### Electromagnetic compatibility (EMC Mark) :

EN 50081-1 : in conformity

EN 50082-2 :

Electrostatic discharge : IEC 1000-4-2

Radiated field : IEC 1000-4-3

Fast transients : IEC 1000-4-4

Electrical shocks : IEC 1000-4-5

Magnetic field at 50/60 Hz : IEC 1000-4-8

(1) Reference conditions : 23 °C ± 5°K, 20 to 75 % RH, battery voltage : 9 V ± 0.5 V, external magnetic field < 40 A/m, no external magnetic or electrical field, test sample centered sinusoidal signal : 10...100 Hz.

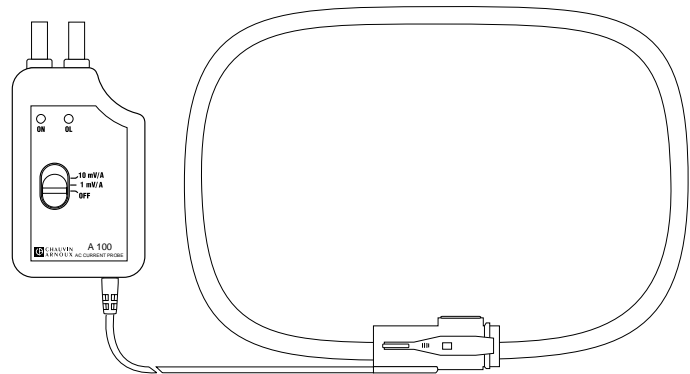
Ordering information	Reference
AmpFLEX™ 200-2000/2, length 45 cm including user's manual	P01.1205.04
AmpFLEX™ 200-2000/2, length 80 cm including user's manual	P01.1205.05

# Flexible AC current probe

## Model A100 300-3000/3

AmpFLEX™ Series

<b>Current</b>	300 A AC	3000 A AC
<b>Output</b>	10 mV/A	1 mV/A



### Electrical specifications

#### Current range :

0.5...300 A AC  
0.5...3000 A AC

#### Output signal :

10 mV AC/A AC (3 V at 300 A)  
1 mV AC/A AC (3 V at 3000 A)

#### Accuracy (1) :

Range	300 A		3000 A	
Primary current	0.5...5 A	5...300 A	0.5...5 A	0.5...3000 A
% accuracy of output signal	not specified	≤ 1%	not specified	≤ 1%
Phase shift	≤ 0.7°	≤ 0.7°	≤ 0.7°	≤ 0.7°

#### Bandwidth :

10 Hz...20 kHz

#### Crest factor :

1.5 nominal current

#### Max. current / Max. output voltage :

No current limit, however maximum output is 4.5 V peak.

#### Load impedance : ≥ 1 MΩ

#### Influence of Z load impedance :

≤ 0.1%/Z, (Z in MΩ)

#### Output impedance :

1 kΩ

#### DC voltage shift at output :

300 A range : ≤ 5 mV DC  
3000 A range : ≤ 2 mV DC

#### Working voltage :

1000 V rms

#### Common mode voltage :

600 V for category III installations and pollution level 2

#### Influence of adjacent conductor :

≤ 1% of interference current at 50 Hz (≤ 2% near catch)

#### Influence of conductor position in the loop :

≤ 1% (≤ 4% near catch)

#### Influence of sensor shape :

≤ 1% for an oblong shape

#### Supply :

9 V alkaline battery (NEDA 1604A, IEC 6LR61)

#### Battery life :

≥ 150 hrs continuous,  
≥ 1000 x 1 min measurements

#### Low Battery signal :

Green LED : battery is OK  
Green LED flashes : battery nearly worn out  
No green LED : battery totally worn out

#### Overload signal : red LED

### Mechanical specifications

#### Working temperature :

-10° to +55°C, (maximum temperature for sensor is 90°C)

#### Storage temperature :

-40° to +70°C

#### Temperature influence :

≤ 0.5% of output signal per 10 K

#### Operating humidity :

from 0 to 95% of RH with linear decrease beyond 35°C

#### Influence of humidity :

< 0.2% of output signal from 10% to 85% of RH

#### Operating altitude :

0...2000 m

#### Casing protection :

Case : IP 40 (IEC 529)  
Flexible sensor : IP65 (IEC 529)

#### Drop test : 1 m (IEC 68-2-32)

#### Shock resistance :

100 g (IEC 68-2-27)

#### Vibration :

5/15/5 1.5 mm - 15/25/15 1 mm - 25/55/25 0.25 mm (IEC 68-2-6)

#### Self-extinguishing ability :

Case, flexible sensor and catch unit :  
UL94 V0

#### Dimensions :

Case : 140 x 64 x 28 mm  
Connector lead : 2 m (connects sensor to case)  
Flexible sensor : Ø 12 mm ±0.5 mm

#### Weight :

Case : < 200 g  
Flexible sensor : approx. 30 g per 10 cm length

#### Bending radius : ≥ 15 mm

#### Colours :

Case and connection leads : dark grey, red  
flexible sensor with dark grey catch unit

#### Output :

2 safety jacks (4mm) spacing 19 mm

### Safety specifications

#### Electrical :

Double insulation or reinforced insulation between primary, secondary and outer parts of case normally handled, IEC 1010-1-1000V category III, pollution 2

#### Electromagnetic compatibility (EMC Mark) :

EN 50081-1 : in conformity  
EN 50082-2 :  
Electrostatic discharge : IEC 1000-4-2  
Radiated field : IEC 1000-4-3  
Fast transients : IEC 1000-4-4  
Electrical shocks : IEC 1000-4-5  
Magnetic field at 50/60 Hz : IEC 1000-4-8

(1) Reference conditions : 23 °C ± 5°K, 20 to 75 % RH, battery voltage : 9 V ± 0.5 V, external magnetic field < 40 A/m, no external magnetic or electrical field, test sample centered sinusoidal signal : 10...100 Hz.

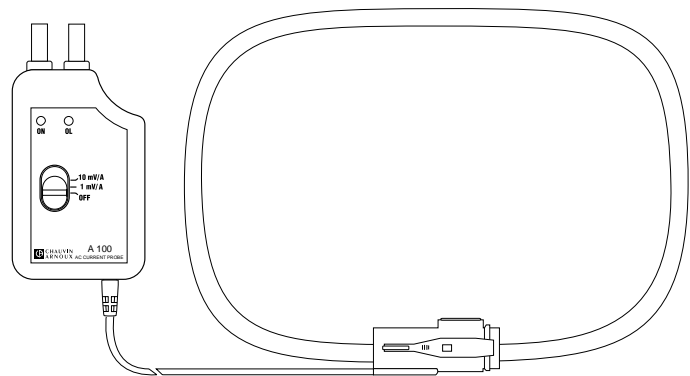
Ordering information	Reference
AmpFLEX™ 300-3000/3, length 45 cm including user's manual	P01.1205.06
AmpFLEX™ 300-3000/3, length 80 cm including user's manual	P01.1205.07
AmpFLEX™ 300-3000/3, length 120 cm including user's manual	P01.1205.08

# Flexible AC current probe

## Model A100 1000-10000/1

AmpFLEX™ Series

<b>Current</b>	1000 A AC	10000 A AC
<b>Output</b>	1 mV/A	0,1 mV/A



### Electrical specifications

#### Current range :

0.5...1000 A AC  
0.5...10000 A AC

#### Output signal :

1 mV AC/A AC (1 V at 1000 A)  
0.1 mV AC/A AC (1 V at 10000 A)

#### Accuracy (1) :

Range	1000 A		10000 A	
	0.5...5 A	5...1000 A	0.5...5 A	0.5...10000 A
Primary current	not specified	≤ 1%	not specified	≤ 1%
% accuracy of output signal	not specified	≤ 1%	not specified	≤ 1%
Phase shift	≤ 0.5°	≤ 0.5°	≤ 0.5°	≤ 0.5°

#### Bandwidth :

10 Hz...[45...65]...20 kHz

#### Crest factor :

4.5 nominal current

#### Max. currents / Max. output voltage :

No current limit, however maximum output is 4.5 V peak.

#### Load impedance : ≥ 1 MΩ

#### Influence of Z load impedance :

≤ 0.1%/Z, (Z in MΩ)

#### Output impedance :

1 kΩ

#### DC voltage gap at output :

1000 A range : ≤ 2 mV DC  
10000 A range : ≤ 1 mV DC

#### Working voltage :

1000 V rms

#### Influence of adjacent conductor :

≤ 1% of interference current at 50 Hz  
(≤ 2% near cath)

#### Influence of conductor position in the loop :

≤ 1% (≤ 4% near catch)

#### Influence of sensor shape :

≤ 1% for an oblong shape

#### Supply :

9 V alkaline battery (NEDA 1604A, IEC 6LR61)

#### Battery life :

≥ 150 hrs continuous operating,  
≥ 1000 x 1 min measurements

#### Low Battery signal :

Green LED : battery is OK  
Green LED flashes : battery nearly worn out  
No green LED : battery totally worn out

#### Overload signal : red LED

### Mechanical specifications

#### Working temperature :

-10° to +55°C (maximum temperature for sensor is 90°C)

#### Storage temperature :

-40° to +70°C

#### Temperature influence :

≤ 0.5% of output signal per 10 K

#### Operating humidity :

from 0 to 95% of RH with linear decrease beyond 35°C

#### Influence of humidity :

< 0.2% of output signal from 10% to 85% of RH

#### Operating altitude :

0...2000 m

#### Casing protection :

Case : IP 40 (IEC 529)  
Flexible sensor : IP65 (IEC 529)

#### Drop test : 1 m (IEC 68-2-32)

#### Shock resistance :

100 g (IEC 68-2-27)

#### Vibration :

5/15/5 1.5 mm - 15/25/15 1 mm - 25/55/25  
0.25 mm (IEC 68-2-6)

#### Self-extinguishing ability :

Case, flexible sensor and catch unit :  
UL94 V0

#### Dimensions :

Case : 140 x 64 x 28 mm  
Connector lead : 2 m (connects sensor to case)

Flexible sensor : Ø 12 mm ±0.5 mm

#### Weight :

Case : < 200 g  
Flexible sensor : approx. 30 g per 10 cm length

#### Bending radius : ≥ 15 mm

#### Colours :

Case and connection leads : dark grey, red  
flexible sensor with dark grey catch unit

#### Output :

2 safety jacks (4mm) spacing 19 mm

### Safety specifications

#### Electrical :

Double insulation or reinforced insulation between primary, secondary and outer parts of case normally handled, IEC 1010-1-1000V category III, pollution 2

#### Electromagnetic compatibility (EMC Mark) :

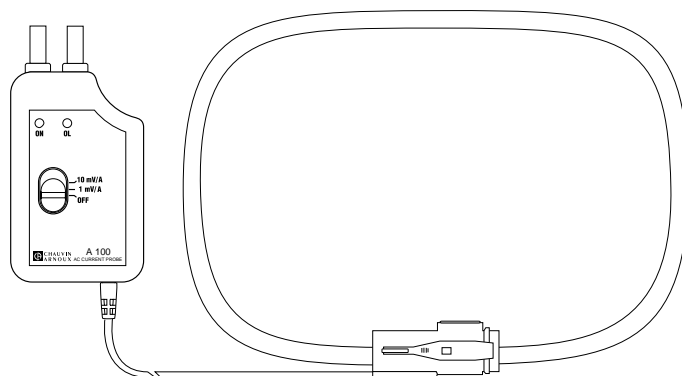
EN 50081-1 : in conformity  
EN 50082-2 :  
Electrostatic discharge : IEC 1000-4-2  
Radiated field : IEC 1000-4-3  
Fast transients : IEC 1000-4-4  
Electrical shocks : IEC 1000-4-5  
Magnetic field at 50/60 Hz : IEC 1000-4-8

(1) Reference conditions : 23 °C ± 5°K, 20 to 75 % RH, battery voltage : 9 V ± 0.5 V, external magnetic field < 40 A/m, no external magnetic or electrical field, test sample centered sinusoidal signal : 10...100 Hz.

Ordering information	Reference
AmpFLEX™ 1000-10000/1, length 120 cm including user's manual	P01.1205.09

# Flexible AC current probe Model A100 on request

AmpFLEX™ Series



To complete the whole range of standard models presented in the preceding pages, CHAUVIN ARNOUX also offers to make special models to meet your particular needs.

To do so, it is necessary to give a reference as follows :

**A 1 0 0**   **A**   **B B B**   **C C C**   **D D D**

with :

A : Number of ranges

BBB : Max. range value, in Amperes

CCC : Max. range sensitivity in mV/A

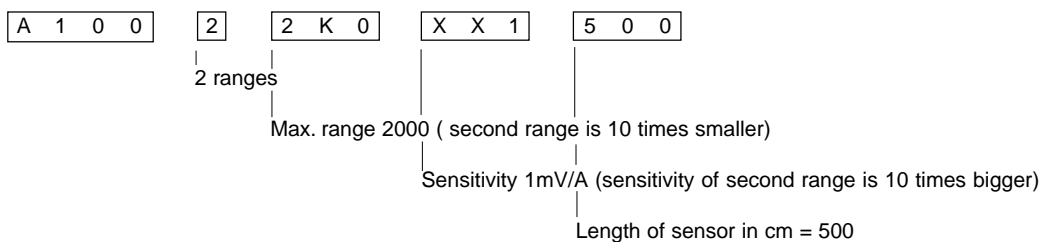
DDD : Length of flexible sensor in cm (min X 40 = 40 cm, max = 990 cm) for a section of 10 cm

### Currently available values :

Model	A 1 0 0	A	B B B	C C C	D D D
20-200 A/2 V	A 1 0 0	2	2 0 0	X 1 0	
2000 A/2 V	A 1 0 0	1	2 K 0	X X 1	
200-2000 A/2 V	A 1 0 0	2	2 K 0	X X 1	
300-3000 A/3 V	A 1 0 0	2	3 K 0	X X 1	
1000-10000 A/1 V	A 1 0 0	2	1 0 K	0 . 1	

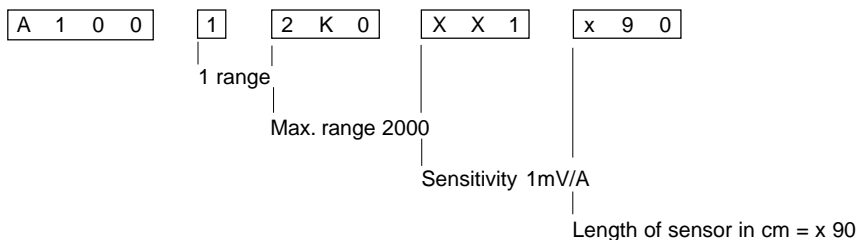
### Example 1 :

A flexible sensor AmpFLEX A100, with 2 ranges 200-2000A and length 5 m would be represented by :



### Example 2 :

A flexible sensor AmpFLEX, range 2000 A length 90 cm would be represented by :



As Chauvin Arnoux is always wishing to improve its products, do not hesitate to contact us for other configurations.



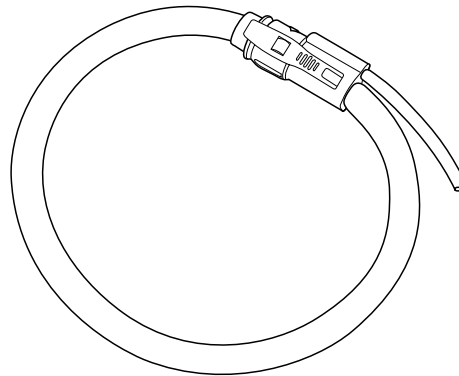
# Flexible AC current probe

## Model A101

AmpFLEX™ Series

The AmpFLEX offers perfect linearity, low phase shift, a wide range of measurements (up to several kA) together with unrivalled ease of use.

The A101 series is Chauvin Arnoux's response to all the measurement instrument manufacturers wishing to integrate AmpFLEX solutions into their product lines.



### ■ Description

The A101 AmpFLEX sensor is composed of an active element (Rogowski coil) and a connection lead.

It is necessary to add on an electronic processing system (not included), in order to complete this measurement device.

Chauvin Arnoux has added an extra step to the manufacturing process of the A101 probe which guarantees their interchangeability. This is essential in applications such as three-phase measurements where several identical probes are used.

### ■ Electrical specifications

**Voltage at sensor terminals :**  
46  $\mu\text{V/A}$  (- 15%...+ 10%) at 50 Hz

**Linearity \* :** < 0.3%

**Phase shift \* :**  $\leq 0.5^\circ$  at 50 Hz

**Error of interchangeability :**  
 $\leq 0.5\%$  (maximum error between 2 sensors for the same measurement point).

#### Frequency range

Depends on the electronics with which it is used.

**Working voltage :** 1000 Vrms or DC

### ■ Mechanical specifications

**Operating temperature :**  
- 20°C to + 60°C

**Storage temperature :**  
- 40°C to + 80°C

**Max temperature of measured cable :**  
 $\leq 90^\circ\text{C}$

**Operating altitude :**  
0...2000 m

**Maximum conductor size :**  
Depending on sensor length.

**Casing protection :**  
IP65 EN 60529

**Self-extinguishing ability :**  
External cover, catch unit, connection lead : UL94 V0

**Dimensions :**  
Sensor  $\varnothing$  : 12 mm

**Weight :**  
Approx. 30 g per 10 cm length

**Colours :**  
Sensor : Red  
Catch unit : dark grey

**Output :**  
According to configuration (refer to § Connections)

**Connections :**  
According to configuration (refer to § Connections)

### ■ Security specifications

**Electrical :**  
Double insulation or reinforced insulation between primary, secondary and outer parts of case normally handled, IEC 1010-1 & IEC 1010-2-032, 1000 V category III, pollution 2

#### Electromagnetic compatibility (EMC Mark) :

EN 50081-1 : in conformity  
EN 50082-2 :  
Electrostatic discharge : IEC 61000-4-2  
Radiated field : IEC 61000-4-3  
Fast transients : IEC 61000-4-4  
Magnetic field at 50/60 Hz : IEC 61000-4-8

\* Reference conditions : 23 °C  $\pm$  6 K, 20 to 75 % RH, frequency 10Hz to 100Hz, sinusoidal signal, no external AC magnetic field, external magnetic field < 40 A/m (earth field) tested sample centered.

## ■ Configurations

Level 1

A	1	0	1								
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- **Category** (fixed field) \_\_\_\_\_
- **Lead length in decimetres** \_\_\_\_\_  
 Min value : **05** (50 cm)  
 Max value : **99** (9.9 m)  
 Increment per 1 dm section (10 cm)
- **Length of connection lead in decimetres** \_\_\_\_\_  
 Min value : **05** (50 cm)  
 Max value : **99** (9.9 m)  
 Increment per section of 1 dm (10 cm)
- **Measurement range** (refer to additional information) \_\_\_\_\_  
 1 : electronic diagram CA1  
 2 : electronic diagram CA2  
 3 : electronic diagram CA3  
 4 : diagram suited for C.A 8310
- **Connections** \_\_\_\_\_  
 X : lead without connection unit  
 C : specific lead
- **Calibration for interchangeability** (refer to additional information) \_\_\_\_\_  
 N : without  
 O : with
- **Special feature** \_\_\_\_\_  
 X1 : plain sensor without CHAUVIN ARNOUX logo, with norms and Amp**FLEX**<sup>TM</sup> inscriptions, plain packing with instruction manual.  
 X2 : plain sensor without CHAUVIN ARNOUX logo, with norms and Amp**FLEX**<sup>TM</sup> inscriptions, plastic bag packing, instruction manual stapled on the plastic bag.  
 C1 : same as CHAUVIN ARNOUX sensor  
 plain packing box with instruction manual  
 C2 : same as CHAUVIN ARNOUX sensor  
 plastic bag packing, instruction manual stapled on the plastic bag.

Level 2

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- **Connections** (refer to additional information) \_\_\_\_\_  
 XXX1 : circular lead 2 conductors + bare and tinned  
 BNC1 : coaxial lead + insulated coaxial plug  
 FRB1 : circular lead 2 conductors + screening with FRB connector  
 D01 model, type 1 (male pins)  
 FRB2 : circular lead 2 conductors + screening with FRB connector  
 D01 model, type 2 (sockets)
- **Colour of connector** (refer to additional information) \_\_\_\_\_  
 XX : no connector  
 BK : black  
 RD : red  
 BU : blue  
 GN : green  
 WH : white  
 YE : yellow
- **+ connection point** \_\_\_\_\_  
 1, 2 or 3 : contact N° connected to +  
 X : no connector
- **- connection point** \_\_\_\_\_  
 1, 2 or 3 : contact N° connected to -  
 X : no connector
- **connected protection** \_\_\_\_\_  
 1, 2 or 3 : contact N° connected to screening  
 X : not connected or no connector
- **Interchangeability resistors** (refer to additional information) \_\_\_\_\_  
 I : included in sensor  
 F : resistors supplied  
 D : values are indicated in the manual included with Amp**FLEX** (resistors not supplied)  
 X : no calibration for interchangeability

## ■ Specific configuration of sensors for C.A 8310 Power & Harmonics Analyser

To complete the range of standard sensors for this product, A190 sensors of different lengths can be used (A190 is an A101 special feature).

Select :

Level 1	A	1	0	1					4	C	O	C	1
Level 2	F	R	B	1					1	3	X	I	

Blank spaces are refer to :

- level 1 : sensor lengths and connection lead to be chosen
- level 2 : colour of connector

## ■ Additional information

### ■ Measurement range (electronic diagram)

Choosing the measurement range depends on sensitivity required and on electronic supply voltages.

**Example :** For a supply voltage of  $\pm 5$  V, electronic output voltage will be limited to  $\pm 4.5$  V peak to peak, that is to say approximately 3 V RMS ( $4.5 \text{ V} / \sqrt{2}$ ) if measured signal is sinusoidal.

The different diagrams refer to sensitivity ranges according to the following chart :

Diagram	CA1	CA2	CA3
Sensitivity	0.1 mV/A...1 mV/A	1 mV/A...10 mV/A	10 mV/A...100 mV/A
Max. measurement range for a $\pm 5$ V supply	3000 A...30000 A	300 A...3000 A	30 A...300 A
Max. measurement range for a $\pm 15$ V supply	9 000 A...90000 A	900 A...9000 A	90 A...900 A

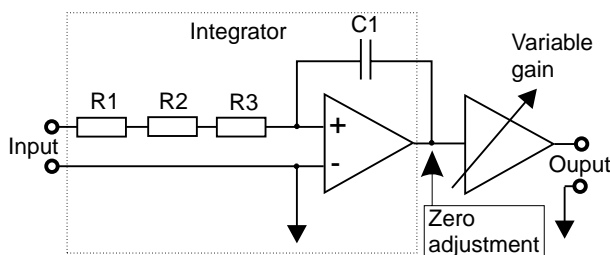
### ■ Interchangeability calibration

For applications that require the use of several sensors, it is necessary to ensure that all the sensors used on a single measuring instrument have identical output specifications.

Calibration is carried out for a standard electronic circuit (refer to following chart) at input level (integrator).

### Combined electronic

Is the standard diagrams of input level, referring to the different measurement ranges required.

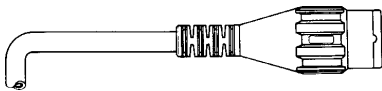

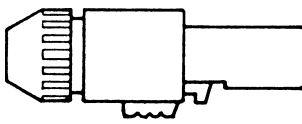



### Resistors and integrator condenser value according to sensitivity

Diagram	CA1	CA2	CA3
Sensitivity	0.1 mV/A to 1 mV/A	1 mV/A to 10 mV/A	10 mV/A to 100 mV/A
C1	100 nF	10 nF	1 nF
R1 = R2 = R3		4.12 k $\Omega$	

C1 preferably in polycarbonate (tolerance 5%).  
R1, R2 and R3 metallic coating, tolerance 1%, power 1/8 W temperature 50 ppm.  
Standard technology or CMS.

## ■ Connections

Connector		Connections selection	Colour of the connector
<b>BNC1</b> Coaxial leads + insulated coaxial plug			BK : black RD : red <sup>(1)</sup> BU : blue <sup>(1)</sup>
<b>FRB1 :</b> FRB D01 model Contact : male  <b>FRB2 :</b> FRB D01 model Contact : female			BK : black RD : red BU : blue GN : green <sup>(1)</sup> WH : white YE : yellow <sup>(1)</sup>

<sup>(1)</sup> colour not in stock

## ■ Interchangeability resistors

In order to enable interchangeability of sensors, the calibration process consists of : defining a value of a resistor which will be put in the measurement circuit.

In fact, this (or these) resistors can be integrated into connectors FRB1 or FRB2.

Contact us for details of other types of connectors.

Ordering information	Reference
<b>A101 AmpFLEX</b> without electronic unit	<b>Contact us</b>
<i>Accessories :</i> "Green" catches (set of 10) "Red" catches (set of 10) "Purple" catches (set of 10) "Black" catches (set of 10) "Blue" catches (set of 10) "Yellow" catches (set of 10) "Brown" catches (set of 10) "White" catches (set of 10) "Grey" catches (set of 10) 9 assorted colours (9 sets of 2) Coloured catches C.A 8310 ("blue", "red", "black" set of 2)	P01.1019.21 P01.1019.22 P01.1019.23 P01.1019.24 P01.1019.25 P01.1019.26 P01.1019.27 P01.1019.28 P01.1019.29 P01.1019.30 P01.1019.31