

# Datenblatt

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## "C100" series

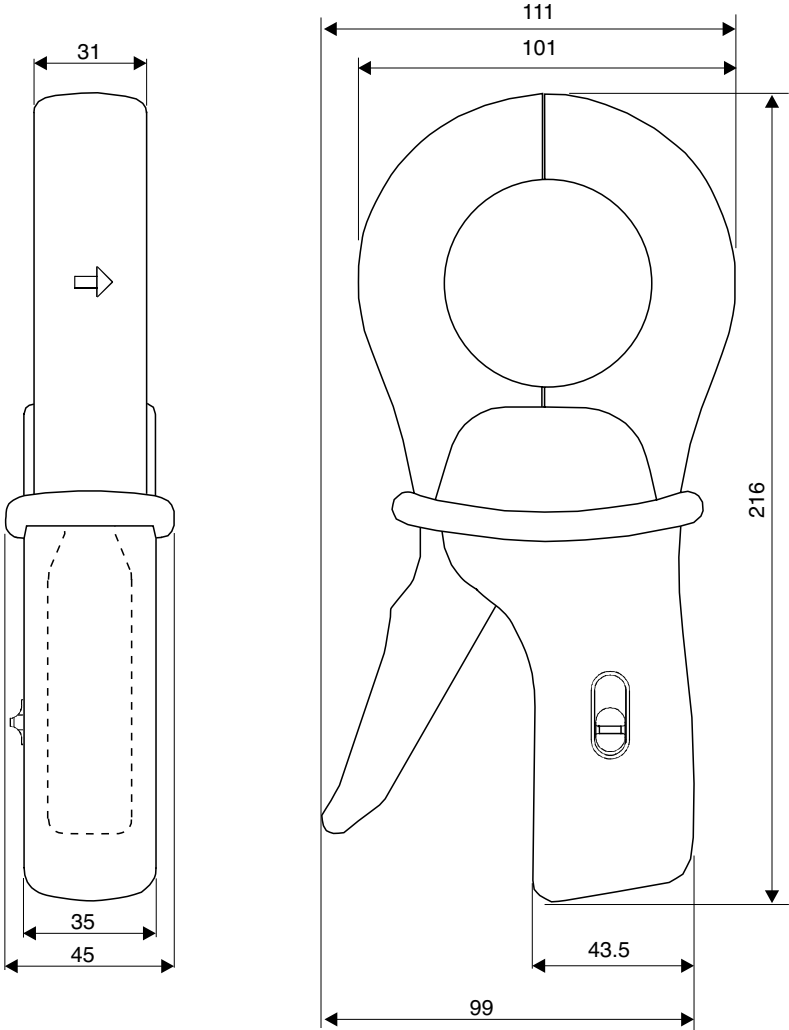
The "C100" series is a range of thirteen transformer clamps with all the advantages of our old "C30" series clamps whilst incorporating considerable improvements, particularly in the field of safety, ergonomics and performance:

- 1000 A measurement, excellent metrology, high accuracy, high level of linearity, symmetrical coil windings for minimum phase shift, pendular adjusting system for magnetic elements, maximum conductor diameter  $\varnothing$  52 mm and also some models with  $\mu$  metal core specially made for wattmeter use.
- Innovative design: excellent ergonomics, handle with finger grips, assisted opening system for jaws (patented system).

- IEC 1010 600 V cat. III safety (industry and services), anti-slip protection, conductor anti-pinching system,...

All this technology and manufacturing quality has been combined to provide the best measurement possible without any complications.

A "C100" series clamp is compatible with any instrument (multimeter, wattmeter, recorder, oscilloscope...) for safe measurement of AC currents without shutting down the installation.

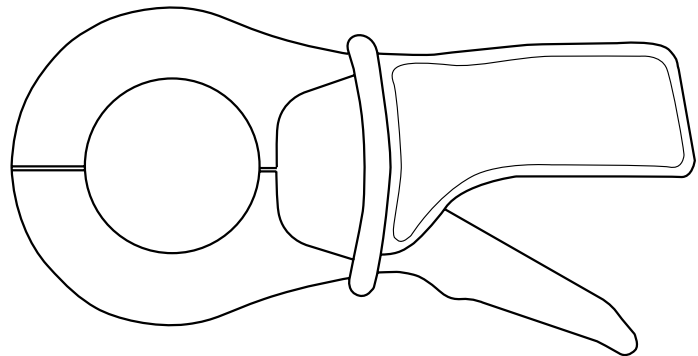


# Current clamp for AC current

## Model C100

C100 series

Current	1000 A
Ratio	1000/1
Output	1 mA/A



### Electrical specifications

#### Current calibre:

0.1 A AC ... 1200 A AC

#### Current transformation ratio:

1000:1

#### Output signal:

1 mA AC/A AC (1 A to 1000 A)

#### Accuracy and phase shift <sup>(1)</sup>:

Primary current	0.1 A...10 A	10 A	50 A <sup>(2)</sup>	200 A <sup>(2)</sup>	1000 A <sup>(2)</sup>	1200 A <sup>(2)</sup>
Accuracy in % of output signal	≤ 3 % + 0.1 mA	≤ 3 %	≤ 1.5 %	≤ 0.75 %	≤ 0.5 %	≤ 0.5 %
Phase shift	not specified	≤ 3°	≤ 1.5°	≤ 0.75°	≤ 0.5°	≤ 0.5°

#### Bandwidth:

30 Hz ... 10 kHz (-3 dB)

#### Crest factor:

≤ 6 for a current ≤ 3000 A peak (500 Arms)

#### Maximum currents:

1000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse frequency beyond)

1200 A for 40 minutes max. (interval between measurements > 20 minutes)

#### Load impedance:

≤ 15 Ω

#### Operating voltage:

600 V rms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

≤ 1 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % of output signal for frequencies ≤ 400 Hz

#### Load influence:

from 5 Ω to 15 Ω

< 0.5 % on measurement

< 0.5° on phase

#### Influence of frequency <sup>(3)</sup>:

< 1 % of output signal from 30 Hz ... 48 Hz

< 0.5 % of output signal from 65 Hz ... 1 kHz

< 1 % of output signal from 1 kHz ... 5 kHz

#### Influence of crest factor:

< 1 % of output signal for crest factor ≤ 6 with current ≤ 3000 A peak (500 Arms)

#### Influence of DC current superimposed on rated current:

< 1 % of output signal for a current ≤ 30 A DC

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +70 °C

#### Influence of temperature:

≤ 0.1 % of output signal per 10 °K

#### Relative humidity for operation:

0 to 85 % RH decreasing linearly above 35 °C

#### Influence of relative humidity:

< 0.1 % of output signal from 10 % to 85 % RH

#### Operating altitude:

0 to 2,000 m

#### Max. jaw opening:

53 mm

Patented progressive opening system

#### Clamping capacity:

Cable: Ø max 52 mm

Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm

#### Casing protection rating:

IP40 (IEC 529)

#### Drop test:

1 m (IEC 68-2-32)

#### Shock resistance:

100 g (IEC 68-2-27)

#### Vibration resistance:

5/15 Hz 1.5 mm

15/25 Hz 1 mm

25/55 Hz 0.25 mm

(IEC 68-2-6)

#### Self-extinguishing capability:

Casing and jaws: UL94 V0

#### Dimensions:

216 x 111 x 45 mm

#### Weight:

550 g

#### Colours:

Dark grey case with red jaws

#### Output:

Safety sockets (4 mm)

### Safety specifications

#### Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility (EMC):

EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2

- Radiated field: IEC 1000-4-3

- Fast transients: IEC 1000-4-4

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

(1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor < 1 %, no DC components, external magnetic field < 40 A/m, no AC magnetic field, conductor centred for measurement, load impedance 5 Ω (5 VA)

(2) Accuracy class in accordance with IEC 185: 5 VA - class 0.5 - 48 Hz ... 65 Hz

(3) Out of frequency domain

To order	Reference
AC current clamp model C100 with operating manual	P01120301

# Current clamps for AC current

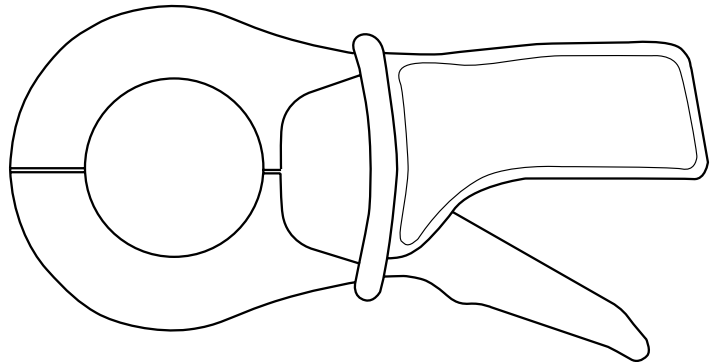
## Models C102 and C103

C100 series

Current	1000 A
Ratio	1000/1
Output	1 mA/A

### Description

An electronic voltage limiter protects the output of the clamp, if the secondary circuit is opened accidentally.



### Electrical specifications

#### Current calibre:

0.1 A AC ... 1200 A AC

#### Current transformation ratio:

1000:1

#### Output signal:

1 mA AC/A AC (1 A for 1000 A)

#### Accuracy and phase shift <sup>(1)</sup>:

Primary current	0.1 A...10 A	10 A	50 A <sup>(2)</sup>	200 A <sup>(2)</sup>	1000 A <sup>(2)</sup>	1200 A <sup>(2)</sup>
Accuracy in % of output signal	≤ 3 % + 0.1 mA	≤ 3 %	≤ 1.5 %	≤ 0.75 %	≤ 0.5 %	≤ 0.5 %
Phase shift	not specified	≤ 3°	≤ 1.5°	≤ 0.75°	≤ 0.5°	≤ 0.5°

#### Bandwidth:

30 Hz ... 10 kHz (-3 dB)

#### Crest factor:

≤ 6 for a current ≤ 3000 A peak (500 Arms)

#### Maximum currents:

1000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse frequency beyond)

1200 A for 40 minutes max. (interval between measurements > 20 minutes)

#### Load impedance:

≤ 15 Ω

#### Max. voltage output:

Electronic limiter 30 V max. peak

#### Operating voltage:

600 V rms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

≤ 1 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % of output signal for frequencies ≤ 400 Hz

#### Load influence:

from 5 Ω to 15 Ω

< 0.5 % on measurement

< 0.5° on phase

#### Influence of frequency <sup>(3)</sup>:

< 1 % of output signal from 30 Hz ... 48 Hz

< 0.5 % of output signal from 65 Hz ... 1 kHz

< 1 % of output signal from 1 kHz ... 5 kHz

#### Influence of crest factor:

< 1 % of output signal for crest factor ≤ 6 with current ≤ 3000 A peak (500 A rms)

#### Influence of DC current superimposed on rated current:

< 1 % of output signal for a current ≤ 30 A DC

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +70 °C

#### Influence of temperature:

≤ 0.1 % of output signal per 10 °K

#### Relative humidity for operation:

0 to 85 % RH with a linear decrease above 35 °C

#### Influence of relative humidity:

< 0.1 % of output signal from 10 % to 85 % RH

#### Operating altitude:

0 to 2,000 m

#### Max. jaw opening:

53 mm, patented progressive opening system

#### Clamping capacity:

Cable: Ø max 52 mm

Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm

#### Casing protection rating:

IP40 (IEC 529)

#### Drop test:

1 m (IEC 68-2-32)

#### Shock resistance:

100 g (IEC 68-2-27)

#### Vibration resistance:

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

#### Self-extinguishing capability:

Casing and jaws: UL94 V0

#### Dimensions:

216 x 111 x 45 mm

#### Weight:

550 g

#### Colours:

Dark grey case with red jaws

#### Output:

■ C102: safety sockets (4 mm)

■ C103: two-wire cable with reinforced insulation or double insulation, length 1.5 m, terminated by 2 insulated elbowed male banana plugs, Ø 4 mm

### Safety specifications

#### Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility (EMC):

EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2

- Radiated field: IEC 1000-4-3

- Fast transients: IEC 1000-4-4

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

(1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor < 1 %, no DC components, external magnetic field < 40 A/m, no AC magnetic field, conductor centred for measurement, load impedance 5 Ω (5 VA).

(2) Accuracy class in accordance with IEC 185: 5 VA - class 0.5 - 48 ... 65 Hz.

(3) Out of reference domain.

To order	Reference
AC current clamp model <b>C102</b> with operating manual	P01120302
AC current clamp model <b>C103</b> with operating manual	P01120303

# Current clamps for AC current

## Models C106 and C107

C100 series

Current	1000 A
Output	1 mV/A

### Electrical specifications

#### Current calibre:

0.1 A AC...1200 A AC

#### Output signal:

1 mVAC/A AC (1 V for 1000 A)

#### Accuracy and phase shift <sup>(1)</sup>:

Primary current	0.1 A...10 A	10 A	50 A	200 A	1000 A	1200 A
% Accuracy of output signal	≤ 3 % + 0.1 mV	≤ 3 %	≤ 1.5 %	≤ 0.75 %	≤ 0.5 %	≤ 0.5 %
Phase shift	not specified	≤ 3°	≤ 1.5°	≤ 0.75°	≤ 0.5°	≤ 0.5°

#### Bandwidth:

30 Hz ...10 kHz

#### Crest factor:

≤ 6 for a current ≤ 3000 A peak (500 Arms)

#### Maximum currents:

1000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse frequency beyond)

1200 A for 40 minutes max. (interval between measurements > 20 minutes)

#### Output impedance:

1 Ω ± 1 %

#### Load impedance:

≥ 1 MΩ and ≤ 100 pF

#### Operating voltage:

600 V rms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

≤ 1 μV/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % of output signal for frequencies ≤ 400 Hz

#### Load influence:

On receiver, for an input impedance of 100 Ω:  
≤ 1 % on measurement, no measurement on phase.

On receiver, for an input impedance of 1 kΩ:  
≤ 0.1 % on measurement, no measurement on phase

#### Influence of frequency <sup>(2)</sup>:

< 1 % of output signal from 30 Hz ...48 Hz

< 0.5 % of output signal from 65 Hz ...1 kHz

< 1 % of output signal from 1 kHz ...5 kHz

#### Influence of crest factor:

< 1 % of output signal for crest factor ≤ 6 with current ≤ 3000 A peak (500 Arms)

#### Influence of DC current superimposed on rated current:

< 1 % of output signal for a current ≤ 30 A DC

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +70 °C

#### Influence of temperature:

≤ 0.1 % of output signal per 10 °K

#### Relative humidity for operation:

0 to 85 % RH decreasing linearly above 35 °C

#### Influence of relative humidity:

< 0.1 % of output signal from 10 % to 85 % RH

#### Operating altitude:

0 to 2,000 m

#### Max. jaw opening:

53 mm

Patented progressive opening system

#### Clamping capacity:

Cable: Ø max 52 mm

Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm

#### Casing protection rating:

IP40 (IEC 529)

#### Drop test:

1 m (IEC 68-2-32)

#### Shock resistance:

100 g (IEC 68-2-27)

#### Vibration resistance:

5/15 Hz 1.5 mm

15/25 Hz 1 mm

25/55 Hz 0.25 mm

(IEC 68-2-6)

#### Self-extinguishing capability:

Casing and jaws: UL94 V0

#### Dimensions:

216 x 111 x 45 mm

#### Weight:

550 g

#### Colours:

Dark grey case with red jaws

#### Output:

■ C106: safety sockets (4 mm)

■ C107: two-wire cable with reinforced insulation or double insulation, length 1.5 m, terminated by 2 insulated elbowed male banana plugs, Ø 4 mm

### Safety specifications

#### Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility (EMC):

EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2

- Radiated field: IEC 1000-4-3

- Fast transients: IEC 1000-4-4

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

(1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor < 1 %, no DC components, external magnetic field < 40 A/m, no AC magnetic field, conductor centred for measurement.

(2) Out of reference domain.

To order	Reference
AC current clamp model <b>C106</b> with operating manual	P01120304
AC current clamp model <b>C107</b> with operating manual	P01120305

# Current clamps for AC current

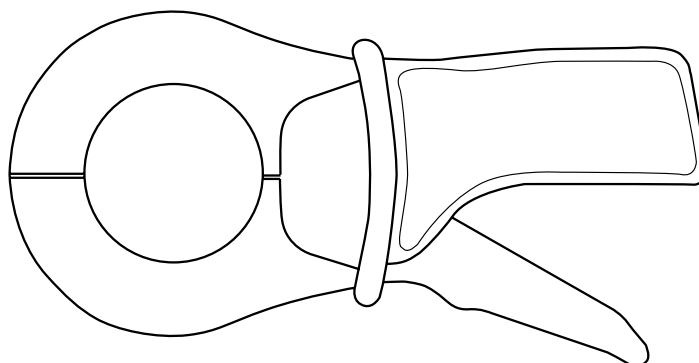
## Models C112 and C113

C100 series

Current	1000 A
Ratio	1000/1
Output	1 mA/A

### Description

Thanks to their excellent technical performance (phase shift and linearity), these  $\mu$ -metal core clamps are highly recommended for wattmeter use.  
These clamps are protected at output against overvoltages.



### Electrical specifications

#### Current calibre:

0.001 A AC ... 1200 A AC

#### Current transformation ratio:

1000:1

#### Output signal:

1 mA AC/A AC (1 A for 1000 A)

#### Accuracy and phase shift<sup>(1)</sup>:

Primary current	0.1 A...100 mA	0.1 A...1 A	1 A...10 A	10 A...100 A	100 A...1200 A
% Accuracy of output signal	$\leq 3\% + 5\mu\text{A}$	$\leq 2\% + 3\mu\text{A}$	$\leq 1\%$	$\leq 0.5\%$	$\leq 0.3\%$
Phase shift	not specified	not specified	$\leq 2^\circ$	$\leq 1^\circ$	$\leq 0.7^\circ$

#### Bandwidth:

30 Hz ... 10 kHz

#### Crest factor:

$\leq 6$  for a current  $\leq 2000$  A peak (300 Arms)

#### Maximum currents:

1000 A continuous for a frequency  $\leq 1$  kHz (limitation proportional to the inverse frequency beyond)

1200 A for 40 minutes max. (interval between measurements > 20 minutes)

#### Load impedance:

$\leq 1\ \Omega$

#### Max. voltage output:

Electronic limiter 30 V max. peak

#### Operating voltage:

600 V rms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

$\leq 0.5$  mA/A at 50 Hz

#### Influence of conductor position in jaws:

$\leq 0.1\%$  of output signal for frequencies  $\leq 400$  Hz

#### Load influence:

from 1  $\Omega$  to 5  $\Omega$   
 $< 0.1\%$  on measurement  
 $< 0.2^\circ$  on phase

#### Influence of frequency<sup>(2)</sup>:

$< 0.5\%$  of output signal from 30 Hz ... 48 Hz  
 $< 1\%$  of output signal from 65 Hz ... 1 kHz  
 $< 2\%$  of output signal from 1 kHz ... 5 kHz

#### Influence of crest factor:

$< 1\%$  of output signal for crest factor  $\leq 6$  with current  $\leq 2000$  A peak (300 A rms)

#### Influence of DC current superimposed on rated current:

$< 1\%$  of output signal for a current  $\leq 15$  A DC

### Mechanical specifications

#### Operating temperature:

-10  $^\circ\text{C}$  to +50  $^\circ\text{C}$

#### Storage temperature:

-40  $^\circ\text{C}$  to +70  $^\circ\text{C}$

#### Influence of temperature:

$\leq 0.2\%$  of output signal per 10  $^\circ\text{K}$

#### Relative humidity for operation:

0 to 85 % RH with a linear decrease above 35  $^\circ\text{C}$

#### Influence of relative humidity:

$< 0.1\%$  of output signal from 10 % to 85 % RH

#### Operating altitude:

0 to 2,000 m

#### Max. jaw opening:

53 mm, patented progressive opening system

#### Clamping capacity:

Cable:  $\varnothing$  max 52 mm  
 Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm

#### Casing protection rating:

IP40 (IEC 529)

#### Drop test:

1 m (IEC 68-2-32)

#### Shock resistance:

100 g (IEC 68-2-27)

#### Vibration resistance:

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

#### Self-extinguishing capability:

Casing and jaws: UL94 V0

#### Dimensions:

216 x 111 x 45 mm

#### Weight:

550 g

#### Colours:

Dark grey case with red jaws

#### Output:

■ C112: safety sockets (4 mm)  
 ■ C113: two-wire cable with reinforced insulation or double insulation, length 1.5 m, terminated by 2 insulated elbowed male banana plugs,  $\varnothing$  4 mm

### Safety specifications

#### Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032  
 - 600 V category III, pollution degree 2  
 - 300 V category IV, pollution degree 2

#### Electromagnetic compatibility (EMC):

EN 50081-1: class B  
 EN 50082-2:  
 - Electrostatic discharge: IEC 1000-4-2  
 - Radiated field: IEC 1000-4-3  
 - Fast transients: IEC 1000-4-4  
 - Magnetic field at 50/60 Hz: IEC 1000-4-8

(1) Conditions of reference: 23  $^\circ\text{C} \pm 3^\circ\text{K}$ , 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor  $< 1\%$ , no DC components, external magnetic field  $< 40$  A/m, no AC magnetic field, conductor centred for measurement, 1  $\Omega$  load (1 VA)

(2) Out of reference domain.

To order	Reference
AC current clamp model C112 with operating manual	P01120314
AC current clamp model C113 with operating manual	P01120315

# Current clamps for AC current

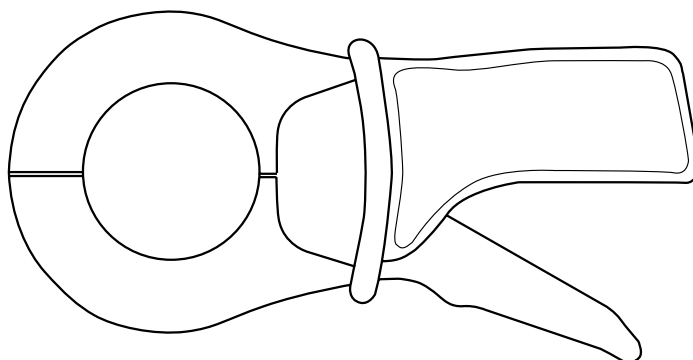
## Models C116 and C117

C100 series

Current	1000 A
Output	1 mV/A

### Description

Thanks to their excellent technical performance (phase shift and linearity), these  $\mu$ -metal core clamps are highly recommended for wattmeter use.



### Electrical specifications

#### Current calibre:

0.001 A AC ... 1200 A AC

#### Output signal:

1 mVAC/A AC (1 V for 1000 A)

#### Accuracy and phase shift <sup>(1)</sup>:

Primary current	1 mA...100 mA	0.1 A...1 A	1 A...10 A	10 A...100 A	100 A...1200 A
Accuracy in % of output signal	$\leq 3\% + 5 \mu A$	$\leq 2\% + 3 \mu A$	$\leq 1\%$	$\leq 0.5\%$	$\leq 0.3\%$
Phase shift	not specified	not specified	$\leq 2^\circ$	$\leq 1^\circ$	$\leq 0.7^\circ$

#### Bandwidth:

30 Hz ... 10 kHz

#### Crest factor:

$\leq 6$  for a current  $\leq 2000$  A peak (300 Arms)

#### Maximum currents:

1000 A continuous for a frequency  $\leq 1$  kHz (limitation proportional to the inverse frequency beyond)

1200 A for 40 minutes max. (interval between measurements > 20 minutes)

#### Output impedance:

$1 \Omega \pm 1\%$

#### Load impedance:

$\geq 1 M\Omega$  and  $\leq 100 pF$

#### Operating voltage:

600 V rms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

$\leq 0.5$  mA/A at 50 Hz

#### Influence of conductor position in jaws:

$\leq 0.1\%$  of output signal for frequencies  $\leq 400$  Hz

#### Load influence:

On receiver, for an input impedance of  $100 \Omega$ :  $\leq 1\%$  on measurement, no measurement on phase

On receiver, for an input impedance of  $1 k\Omega$ :  $\leq 0.1\%$  on measurement, no measurement on phase

#### Influence of frequency <sup>(2)</sup>:

$< 0.5\%$  of output signal from 30 Hz ... 48 Hz

$< 1\%$  of output signal from 65 Hz ... 1 kHz

$< 2\%$  of output signal from 1 kHz ... 5 kHz

#### Influence of crest factor:

$< 1\%$  of output signal for crest factor  $\leq 6$  with current  $\leq 2000$  A peak

#### Influence of DC current superimposed on rated current:

$< 1\%$  of output signal for a current  $\leq 15$  A DC

### Mechanical specifications

#### Operating temperature:

$-10^\circ C$  to  $+50^\circ C$

#### Storage temperature:

$40^\circ C$  to  $+70^\circ C$

#### Influence of temperature:

$\leq 0.2\%$  of output signal per  $10^\circ K$

#### Relative humidity for operation:

0 to 85 % RH decreasing linearly above  $35^\circ C$

#### Influence of relative humidity:

$< 0.1\%$  of output signal from 10 % to 85 % RH

#### Operating altitude:

0 to 2,000 m

#### Max. jaw opening:

53 mm, patented progressive opening system

#### Clamping capacity:

Cable:  $\varnothing$  max 52 mm

Busbar: 1 busbar of  $50 \times 5$  mm / 4 busbars of  $30 \times 5$  mm

#### Casing protection rating:

IP40 (IEC 529)

#### Drop test:

1 m (IEC 68-2-32)

#### Shock resistance:

100 g (IEC 68-2-27)

#### Vibration resistance:

5/15 Hz 1.5 mm

15/25 Hz 1 mm

25/55 Hz 0.25 mm

(IEC 68-2-6)

#### Self-extinguishing capability:

Casing and jaws: UL94 V0

#### Dimensions:

216 x 111 x 45 mm

#### Weight:

550 g

#### Colours:

Dark grey case with red jaws

#### Output:

■ C116: safety sockets (4 mm)

■ C117: two-wire cable with reinforced insulation or double insulation, length 1.5 m, terminated by 2 insulated elbowed male banana plugs,  $\varnothing$  4 mm

### Safety specifications

#### Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility (EMC):

EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2

- Radiated field: IEC 1000-4-3

- Fast transients: IEC 1000-4-4

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

(1) Conditions of reference:  $23^\circ C \pm 3^\circ K$ , 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor  $< 1\%$ , no DC components, external magnetic field  $< 40$  A/m, no AC magnetic field, conductor centred for measurement, load impedance  $\geq 1 M\Omega$  and  $\leq 100 pF$

(2) Out of reference domain

To order	Reference
AC current clamp model C116 with operating manual	P01120316
AC current clamp model C117 with operating manual	P01120317



# Clamp-on ammeter for AC current

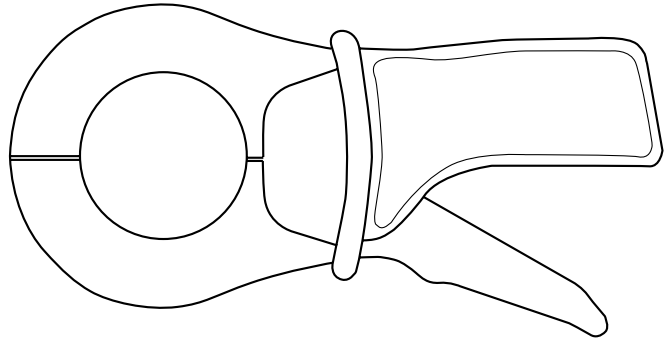
## Model C122

C100 series

Current	1000 A
Ratio	1000/5
Output	5 mA/A

### Description

An electronic voltage-limiting system protects output of clamp when operating, if the secondary circuit is opened accidentally.



### Electrical specifications

#### Current calibre:

1 AAC ... 1200 AAC

#### Current transformation ratio:

1000:5

#### Output signal:

5 mA AC/AAC (5 A for 1000 A)

#### Accuracy and phase shift <sup>(1)</sup>:

Primary current	1 A...20 A	20 A	50 A <sup>(2)</sup>	200 A <sup>(2)</sup>	1000 A <sup>(2)</sup>	1200 A <sup>(2)</sup>
Accuracy in %	≤ 6 % + 0.5 mA	≤ 5 %	≤ 3 %	≤ 1.5 %	≤ 1 %	≤ 1 %
Phase shift	not specified	≤ 3°	≤ 3°	≤ 1.5°	≤ 1°	≤ 1°

#### Bandwidth:

30 Hz ... 10 kHz

#### Crest factor:

≤ 6 for a current ≤ 3000 A peak (500 Arms)

#### Maximum currents:

1000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse frequency beyond)

1200 A for 30 minutes max (interval between measurements > 15 minutes)

#### Load impedance:

≤ 0.6 Ω

#### Impedance of connection leads:

≤ 40 mΩ

#### Max. voltage at output (secondary circuit open):

Electronic limiter 30 V max. peak

#### Operating voltage:

600 V rms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

≤ 1 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.2 % of output signal for frequencies ≤ 400 Hz

#### Load influence:

from 0.2 Ω to 0.6 Ω

< 0.5 % on measurement

< 0.5° on phase

#### Influence of frequency <sup>(3)</sup>:

< 1 % of output signal from 30 Hz ... 48 Hz

< 0.5 % of output signal from 65 Hz ... 1 kHz

< 1 % of output signal from 1 kHz ... 5 kHz

#### Influence of crest factor:

< 1 % of output signal for crest factor ≤ 6 with current ≤ 3000 A peak (500 Arms)

#### Influence of DC current superimposed on rated current:

< 1 % of output signal for a current ≤ 30 A DC

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +70 °C

#### Influence of temperature:

≤ 0.1 % of output signal per 10 °K

#### Relative humidity for operation:

0 to 85 % RH with a linear decrease above 35 °C

#### Influence of relative humidity:

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

#### Operating altitude:

0 to 2,000 m

#### Max. jaw opening:

53 mm, patented progressive opening system

#### Clamping capacity:

- Cable: Ø max 52 mm

- Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm

#### Casing protection rating:

IP40 (IEC 529)

#### Drop test:

1 m (IEC 68-2-32)

#### Shock resistance:

100 g (IEC 68-2-27)

#### Vibration resistance:

5/15 Hz 1.5 mm

15/25 Hz 1 mm

25/55 Hz 0.25 mm

(IEC 68-2-6)

#### Self-extinguishing capability:

Casing and jaws: UL94 V0

#### Dimensions:

216 x 111 x 45 mm

#### Weight:

550 g

#### Colours:

Dark grey case with red jaws

#### Output:

Safety sockets (4 mm)

### Safety specifications

#### Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility (EMC):

EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2

- Radiated field: IEC 1000-4-3

- Fast transients: IEC 1000-4-4

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

(1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor < 1 %, no DC components, external magnetic field < 40 A/m, no AC magnetic field, conductor centred for measurement, load impedance 0.2 Ω (5 VA)

(2) Accuracy class in accordance with IEC 185: 5 VA - class 1 - 48 ... 65 Hz

(3) Out of reference domain

To order	Reference
AC current clamp model C122 with operating manual	P01120306

# Current clamp for AC current

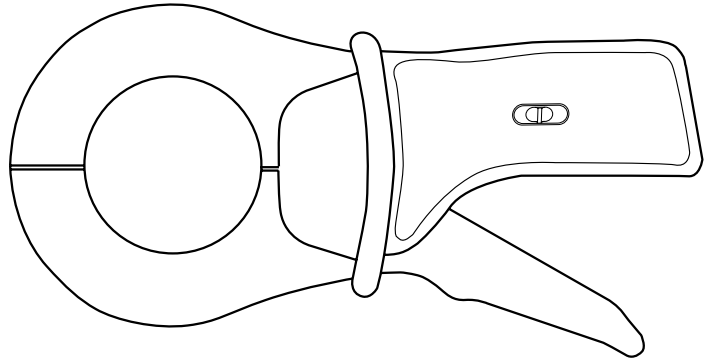
## Model C148

C100 series

<b>Current</b>	250 A AC	500 A AC	1000 A AC
<b>Ratio</b>	250:5	500:5	1000:5
<b>Output</b>	20 mA/A	10 mA/A	5 mA/A

### Description

An electronic voltage-limiting system protects output of clamp when operating if the secondary circuit is opened accidentally.



### Electrical specifications

#### Current calibres:

1 A AC...300 A AC  
1 A AC...600 A AC  
1 A AC...1200 A AC

#### Current transformation ratio

250:5  
500:5  
1000:5

#### Output signal:

20 mA AC/A AC (5 A for 250 A)  
10 mA AC/A AC (5 A for 500 A)  
5 mA AC/A AC (5 A for 1000 A)

#### Accuracy and phase shift <sup>(1)</sup>:

##### ■ 250 A calibre

Primary current	1 A...5 A	5 A	12.5 A <sup>(2)</sup>	50 A <sup>(2)</sup>	250 A <sup>(2)</sup>	300 A <sup>(2)</sup>
Accuracy in %	≤ 10 % + 2 mA	≤ 10 %	≤ 5 %	≤ 2.5 %	≤ 2 %	≤ 2 %
Phase shift	not specified	not specified	≤ 10°	≤ 10°	≤ 10°	≤ 10°

##### ■ 500 A calibre

Primary current	1 A...10 A	10 A	25 A <sup>(3)</sup>	100 A <sup>(3)</sup>	500 A <sup>(3)</sup>	600 A <sup>(3)</sup>
Accuracy in %	≤ 6 % + 1 mA	≤ 6 %	≤ 3 %	≤ 2 %	≤ 1 %	≤ 1 %
Phase shift	not specified	≤ 6°	≤ 4°	≤ 3°	≤ 2.5°	≤ 2.5°

##### ■ 1000 A calibre

Primary current	1 A...20 A	20 A	50 A <sup>(4)</sup>	200 A <sup>(4)</sup>	1000 A <sup>(4)</sup>	1200 A <sup>(4)</sup>
Accuracy in %	≤ 6 % + 0.5 mA	≤ 5 %	≤ 3 %	≤ 1.5 %	≤ 1 %	≤ 1 %
Phase shift	not specified	≤ 5°	≤ 3°	≤ 1.5°	≤ 1°	≤ 1°

#### Bandwidth:

48 Hz...1 kHz

#### Crest factor:

■ 250 A calibre:  
≤ 6 with current ≤ 750 A peak  
■ 500 A calibre:  
≤ 6 with current ≤ 1500 A peak  
■ 1000 A calibre:  
≤ 6 with current ≤ 3000 A peak

#### Maximum currents:

1200 A for frequencies ≤ 1 kHz for 30 minutes max. (interval between measurements > 15 minutes)

#### Load impedance:

■ 250 A calibre: ≤ 0.2 Ω  
■ 500 A calibre: ≤ 0.4 Ω  
■ 1000 A calibre: ≤ 0.4 Ω

#### Impedance of connection leads:

≤ 40 mΩ

#### Max. voltage at output (secondary circuit open):

Electronic limiter 30 V max. peak

#### Operating voltage:

600 V rms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

■ 250 A calibre: ≤ 15 mA/A at 50 Hz  
■ 500 A calibre: ≤ 10 mA/A at 50 Hz  
■ 1000 A calibre: ≤ 1 mA/A at 50 Hz

#### Influence of conductor position in jaws:

for frequencies ≤ 400 Hz

■ 250 A calibre: ≤ 0.6 % of output signal  
■ 500 A calibre: ≤ 0.4 % of output signal  
■ 1000 A calibre: ≤ 0.2 % of output signal

#### Load influence:

■ 250 A calibre: from 25 mΩ to 0.2 Ω  
< 2 % on measurement  
< 4° on phase

■ 500 A calibre: from 50 mΩ to 0.4 Ω  
< 1 % on measurement  
< 2° on phase

■ 1000 A calibre: from 50 mΩ to 0.4 Ω  
< 0.5 % on measurement  
< 0.5° on phase

#### Influence of frequency <sup>(5)</sup>:

■ 250 A calibre:  
< 1 % of output signal from 65 Hz...100 Hz  
< 5 % of output signal from 100 Hz...1 kHz

■ 500 A calibre:  
< 1 % of output signal from 65 Hz...1 kHz

■ 1000 A calibre:  
< 0.5 % of output signal from 65 Hz...100 Hz  
< 1 % of output signal from 100 Hz...1 kHz

#### Influence of crest factor:

< 1 % of output signal for crest factor ≤ 6 with current:  
≤ 750 A peak (250 A calibre)  
≤ 1500 A peak (500 A calibre)  
≤ 3000 A peak (1000 A calibre)

#### Influence of DC current superimposed on rated current:

< 1 % of output signal for a current ≤ 30 A DC

# Current clamp for AC current

## Model C148

C100 series

### ■ Mechanical specifications

**Operating temperature:**  
-10 °C to +50 °C

**Storage temperature:**  
-40 °C to +70 °C

**Influence of temperature:**  
≤ 0.15 % of output signal per 10 °K

**Relative humidity for operation:**  
0 to 85 % RH decreasing linearly above 35 °C

**Influence of relative humidity:**  
10 % to 85 % RH

■ 250 A calibre:  
< 0.6 % of output signal and < 2° on phase

■ 500 A calibre:  
< 0.4 % of output signal and < 0.6° on phase

■ 1000 A calibre:  
< 0.2 % of output signal and < 0.2° on phase

**Operating altitude:**  
0 to 2,000 m

**Max. jaw opening:**  
53 mm  
Patented progressive opening system

**Clamping capacity:**

Cable: Ø max 52 mm  
Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm

**Casing protection rating:**  
IP40 (IEC 529)

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

**Shock resistance:**  
100 g (IEC 68-2-27)

**Vibration resistance:**  
5/15 Hz 1.5 mm  
15/25 Hz 1 mm  
25/55 Hz 0.25 mm  
(IEC 68-2-6)

**Self-extinguishing capability:**  
UL94 V0

**Dimensions:**  
216 x 111 x 45 mm

**Weight:**  
550 g

**Colours:**  
Dark grey case with red jaws

**Output:**  
Safety sockets (4 mm)

### ■ Safety specifications

**Electrical safety:**

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2
- 300 V category IV, pollution degree 2

**Electromagnetic compatibility (EMC):**

EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2
- Radiated field: IEC 1000-4-3
- Fast transients: IEC 1000-4-4
- Magnetic field at 50/60 Hz: IEC 1000-4-8

(1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor < 1 %, external magnetic field < 40 A/m, no AC magnetic field, conductor centred for measurement, load impedance:

- 250 A calibre: 0.1 Ω (2.5 VA)
- 500 A calibre: 0.2 Ω (5 VA)
- 1000 A calibre: 0.2 Ω (5 VA)

(2) Accuracy class in accordance with IEC 185: 2.5 VA - class 3 - 48-65 Hz

(3) Accuracy class in accordance with IEC 185: 5 VA - class 3 - 48-65 Hz

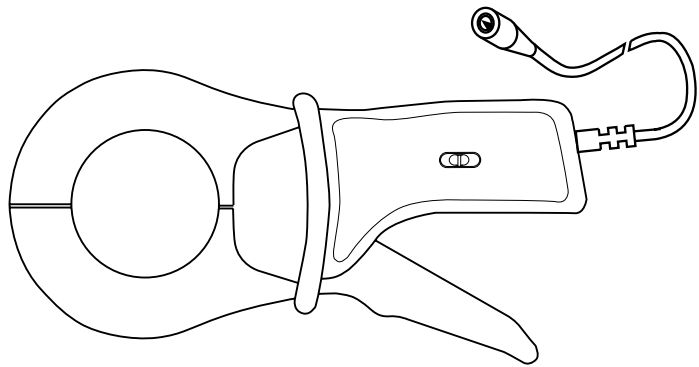
(4) Accuracy class in accordance with IEC 185: 5 VA - class 1 - 48-65 Hz

(5) Out of reference domain

To order	Reference
AC current clamp model C148 with operating manual	P01120307

## Model C160 (insulated AC current probe)

<b>Current</b>	30 A peak	300 A peak	2000 A peak
<b>Output</b>	100 mV/A	10 mV/A	1 mV/A



### Description

This 1,000 A AC clamp can be used for easy display and measurement of current curves. Equipped with a coaxial cable terminated by a BNC connector, it is ideal for use with any oscilloscope. It outputs a signal in mV directly proportional to the current. It offers 3 different sensitivities.

### Electrical specifications

#### Current calibres:

- 0.1 A AC...10 A AC (30 A peak)
- 1 A AC...100 A AC (300 A peak)
- 1 A AC...1000 A AC (2000 A peak)

#### Output signal:

- 100 mVAC/AAC (1 V for 10 A)
- 10 mVAC/AAC (1 V for 100 A)
- 1 mAAC/AAC (1 V for 1000 A)

#### Accuracy and phase shift <sup>(1)</sup>:

##### ■ 10 A calibre

Primary current	0.1 A...0.5 A	0.5 A...2 A	2 A...10 A	10 A...12 A
% Accuracy of output signal	$\leq 3\% + 10 \text{ mV}$	$\leq 3\% + 10 \text{ mV}$	$\leq 3\% + 10 \text{ mV}$	$\leq 3\% + 10 \text{ mV}$
Phase shift	not specified	not specified	$\leq 15^\circ$	$\leq 15^\circ$

##### ■ 100 A calibre

Primary current	0.1 A...5 A	5 A...20 A	20 A...100 A	100 A...120 A
% Accuracy of output signal	$\leq 2\% + 5 \text{ mV}$	$\leq 2\% + 5 \text{ mV}$	$\leq 2\% + 5 \text{ mV}$	$\leq 2\% + 5 \text{ mV}$
Phase shift	not specified	$\leq 15^\circ$	$\leq 10^\circ$	$\leq 5^\circ$

##### ■ 1000 A calibre

Primary current	1 A...50 A	50 A...200 A	200 A...1000 A	1000 A...1200 A
% Accuracy of output signal	$\leq 1\% + 1 \text{ mV}$	$\leq 1\% + 1 \text{ mV}$	$\leq 1\% + 1 \text{ mV}$	$\leq 1\% + 1 \text{ mV}$
Phase shift	not specified	$\leq 3^\circ$	$\leq 2^\circ$	$\leq 1^\circ$

#### Bandwidth:

10 Hz...100 kHz (-3 dB) (depending on current value)

#### Rise/fall time from 10 % to 90 %:

3.5  $\mu\text{s}$

#### 10 % delay time:

0.5  $\mu\text{s}$

#### Ampere second product:

- 10 A calibre: 3.2 A.s
- 100 A calibre: 26 A.s
- 1000 A calibre: 64 A.s

#### Maximum currents:

1000 A permanent  
1200 A for 40 minutes max. / > 20 minutes shutdown for a frequency  $\leq 1$  kHz (limitation proportional to the inverse of one third of the frequency beyond that)

#### Insertion impedance (at 400 Hz / 10 kHz)

- 10 A calibre:  $< 0.3 \text{ m}\Omega / < 6.6 \text{ m}\Omega$
- 100 A calibre:  $< 0.3 \text{ m}\Omega / < 2 \text{ m}\Omega$
- 1000 A calibre:  $< 0.3 \text{ m}\Omega / < 1.6 \text{ m}\Omega$

#### Output impedance at 1 kHz:

- 10 A calibre:  $\leq 515 \Omega \pm 10\%$
- 100 A calibre:  $\leq 515 \Omega \pm 10\%$
- 1000 A calibre:  $\leq 515 \Omega \pm 10\%$

#### Influence of temperature:

$\leq 150 \text{ ppm/k}$  or 0.15 % of output signal per 10 °K

#### Influence of relative humidity:

$< 0.1\%$  of output signal

#### Influence of adjacent conductor:

$\leq 1 \text{ mA/A}$  at 50 Hz

#### Influence of DC current superimposed on rated current:

$< 1\%$  of output signal for a current  $\leq 30 \text{ A DC}$

**Influence of conductor position in jaws:**  
 $\leq 0.1\%$  of output signal for frequencies  $\leq 400 \text{ Hz}$

#### Influence of frequency <sup>(2)</sup>:

##### ■ 10 A calibre:

- $< 10\%$  of output signal from 10 Hz to 1 kHz
- $< 5\%$  of output signal from 1 kHz to 10 kHz
- $< 20\%$  of output signal from 10 kHz to 50 kHz
- 3 dB of output signal from 50 kHz to 100 kHz

##### ■ 100 A calibre:

- $< 5\%$  of output signal from 10 Hz to 1 kHz
- $< 3\%$  of output signal from 1 kHz to 10 kHz
- $< 20\%$  of output signal from 10 kHz to 50 kHz
- 3 dB of output signal from 50 kHz to 100 kHz

##### ■ 1000 A calibre:

- $< 1\%$  of output signal from 10 Hz to 1 kHz
- $< 2\%$  of output signal from 1 kHz to 10 kHz
- $< 10\%$  of output signal from 10 kHz to 50 kHz
- 3 dB of output signal from 50 kHz to 100 kHz

#### Influence of crest factor:

$< 1\%$  of output signal for crest factor  $\leq 6$  with current

- 10 A calibre:  $\leq 30 \text{ A peak}$
- 100 A calibre:  $\leq 300 \text{ A peak}$
- 1000 A calibre:  $\leq 3000 \text{ A peak}$

# Oscilloscope clamp for AC current

## Model C160 (insulated AC current probe)

C100 series

### ■ Mechanical specifications

**Max. jaw opening:**  
53 mm

**Clamping capacity:**

Cable:  $\varnothing$  max 52 mm

Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm

**Operating temperature:**

-10 °C to +55 °C

**Storage temperature:**

-40 °C to +70 °C

**Relative humidity for operation:**

0 to 85 % RH decreasing linearly above 35 °C

**Operating altitude:**

0 to 2,000 m

**Casing protection rating:**

IP30 with clamp open (IEC 529)

IP40 with clamp closed (IEC 529)

**Drop test:**

1 m (IEC 68-2-32)

**Shock resistance:**

100 g / 6 ms / half-period (IEC 68-2-27)

**Protection against impacts:**

IK04 0.5 J (EN 50102)

**Vibration resistance:**

5/15 Hz 1.5 mm peak

15/25 Hz 1 mm peak

25/55 Hz 0.25 mm peak

(IEC 68-2-6)

**Self-extinguishing capability:**

Casing and jaws: UL94 V0

**Dimensions:**

216 x 111 x 45 mm

**Weight:**

550 g

**Colours:**

Dark grey case with red jaws

**Output:**

2 m coaxial lead with insulated BNC plug

### ■ Safety specifications

**Electrical safety:**

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

**Electromagnetic compatibility (EMC):**

EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2

without disturbance: 4 kV class 2

non-destructive: 15 kV class 4

- Radiated field: IEC 1000-4-3

without disturbance: 10 V/m performance criterion A

- Fast transients: IEC 1000-4-4

without disturbance: 1 kV class 2

non-destructive: 2 kV class 3

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

field of 400 A/m at 50 Hz: < 1 A

(1) Conditions of reference: 23 °C  $\pm$  3 °K, 20 % to 75 % RH, sine signal, frequency of 48 Hz to 1000 Hz, distortion factor < 1 % with no DC component, external magnetic field < 40 A/m, no DC components, no external conductor with circulating current, conductor centred for measurement, load impedance:  $\geq$  1 M $\Omega$  and < 100 pF

(2) Out of reference domain

To order	Reference
AC current clamp model C160 with operating manual	P01120308

# Oscilloscope clamp for AC current

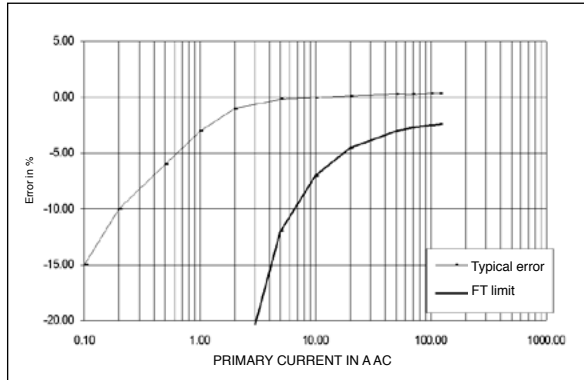
## Model C160 (insulated AC current probe)

C100 series

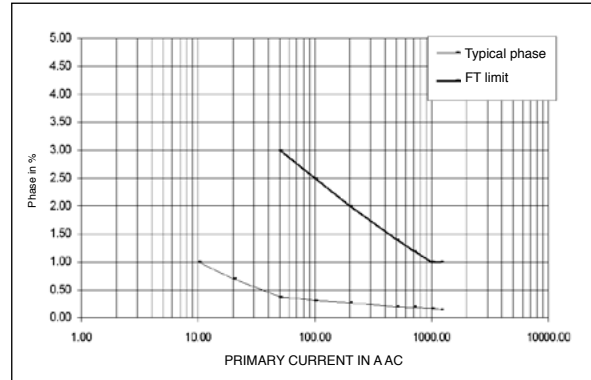
### Curves at 50 Hz

#### 1000 A calibre

Error on measurement

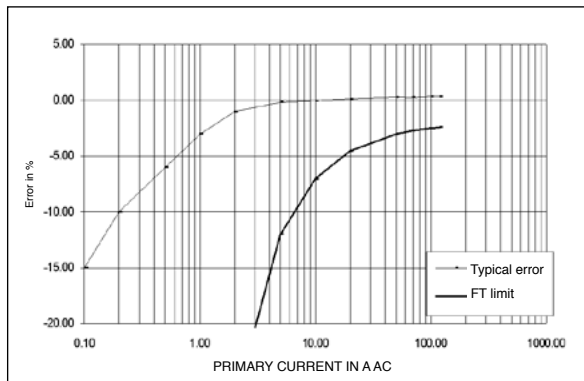


Phase shift

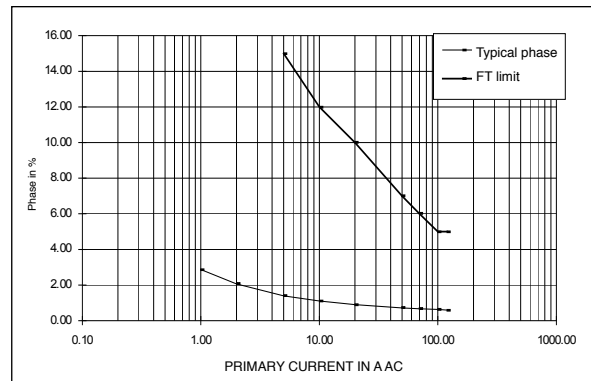


#### 100 A calibre

Error on measurement

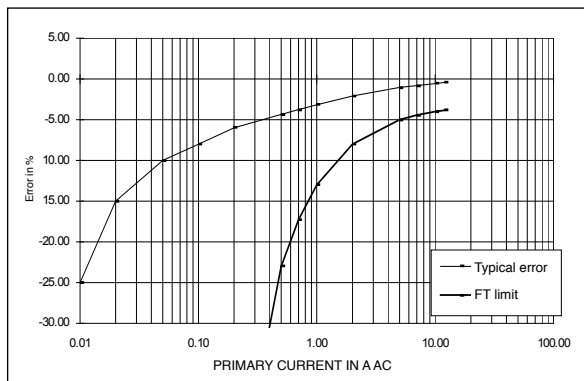


Phase shift

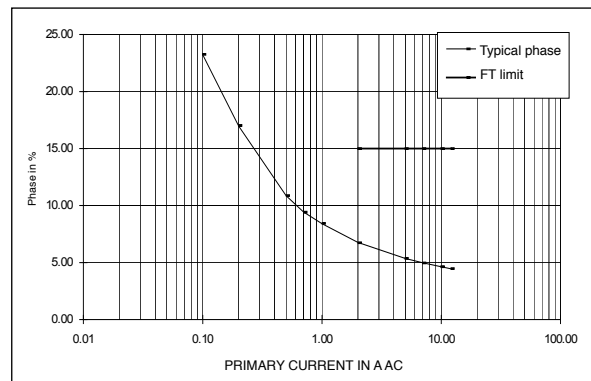


#### 10 A calibre

Error on measurement



Phase shift



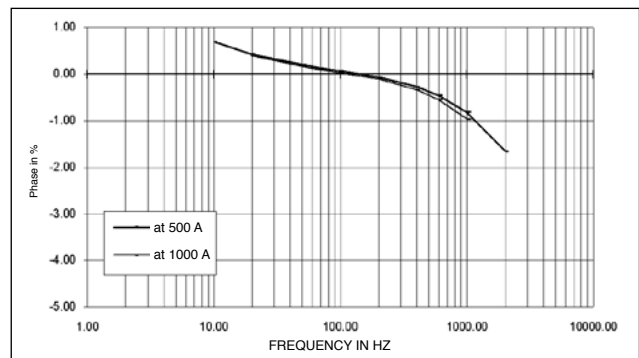
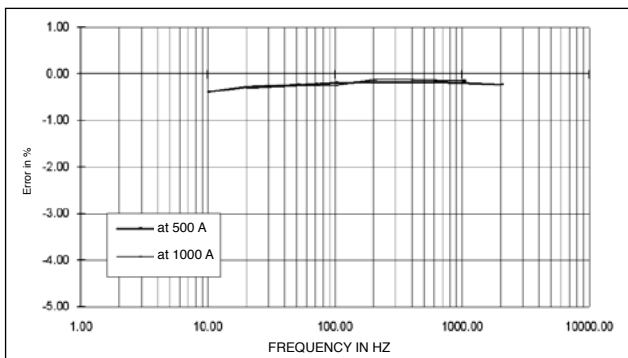
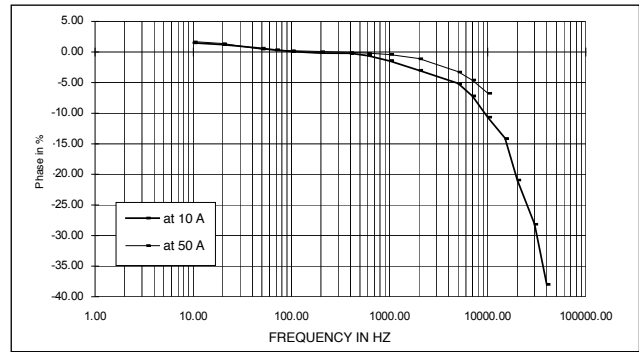
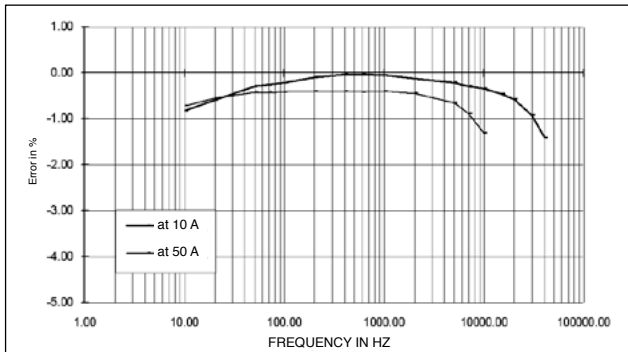
# Oscilloscope clamp for AC current

## Model C160 (insulated AC current probe)

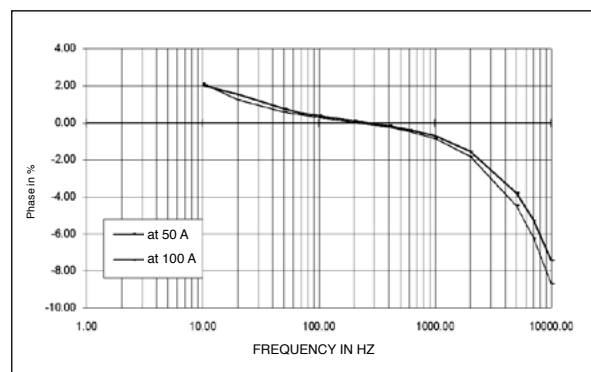
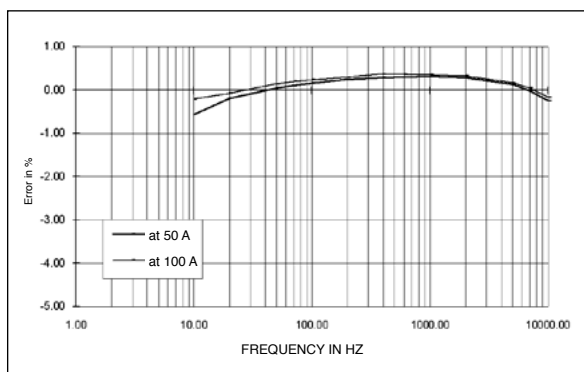
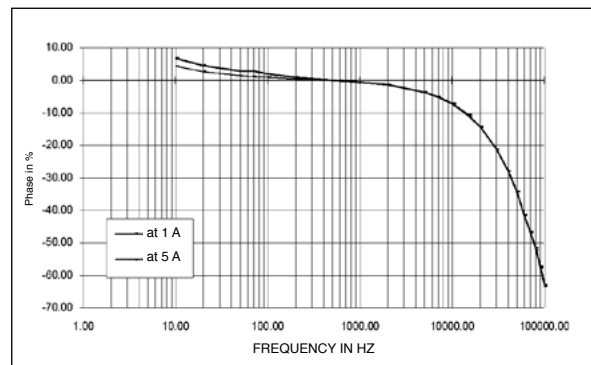
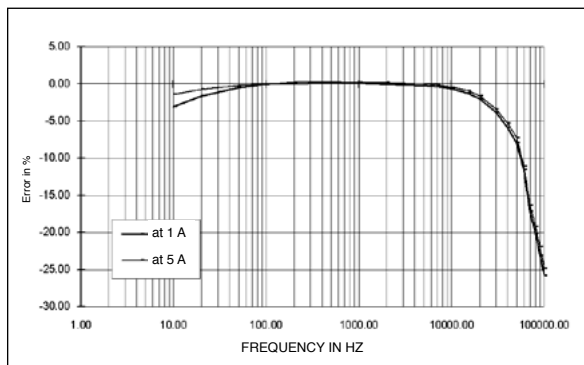
C100 series

### ■ Frequency response (cont.)

*1000 A calibre*



*100 A calibre*



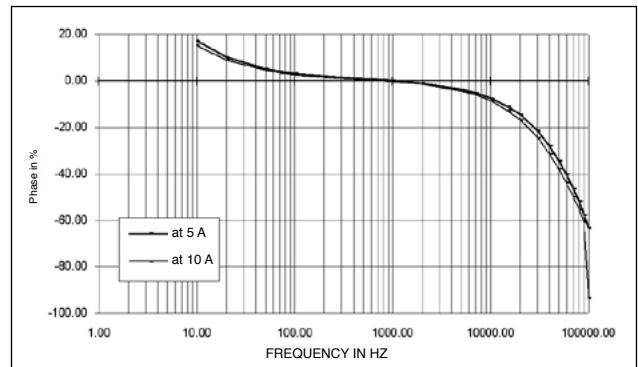
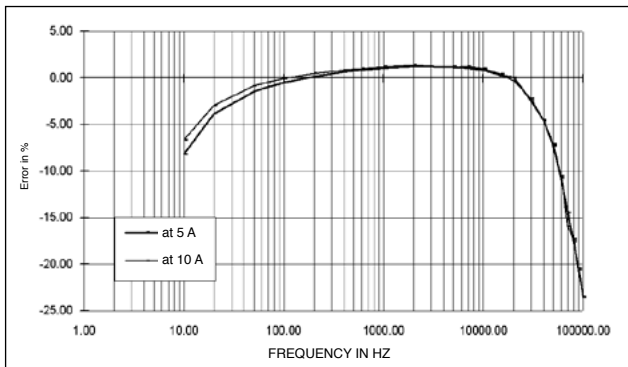
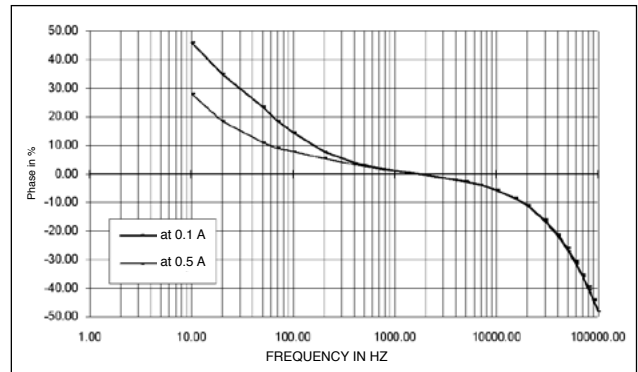
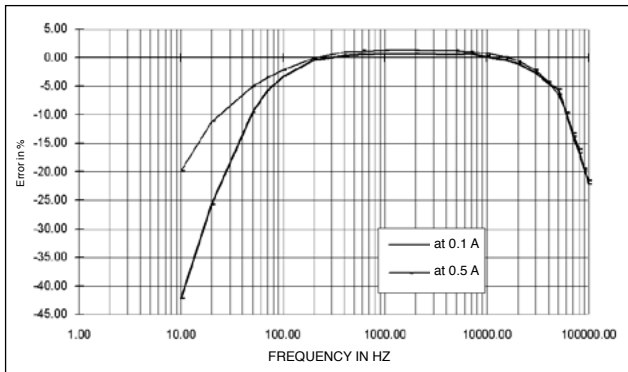
# Oscilloscope clamp for AC current

## Model C160 (insulated AC current probe)

C100 series

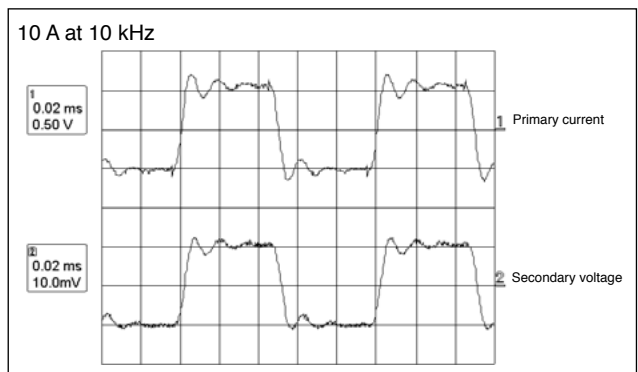
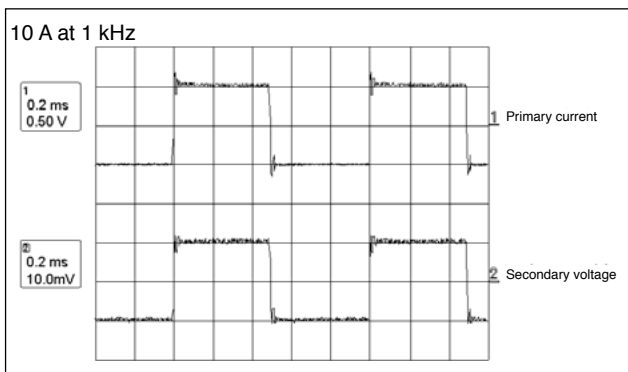
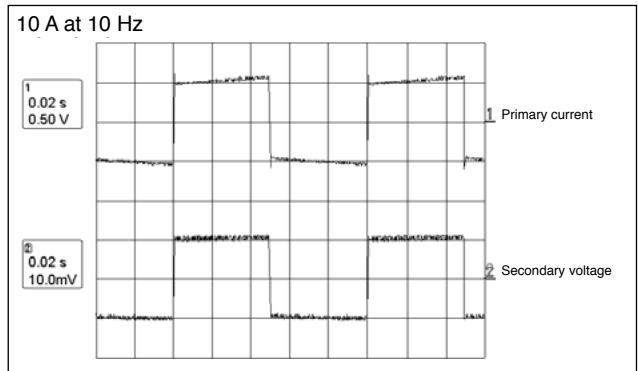
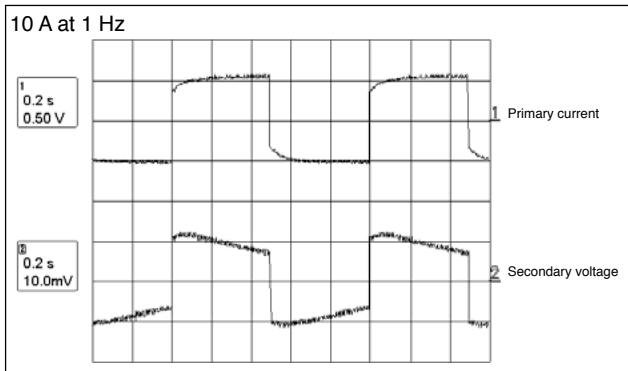
### Frequency response (cont.)

10 A calibre



### Response to a square signal

1000 A calibre





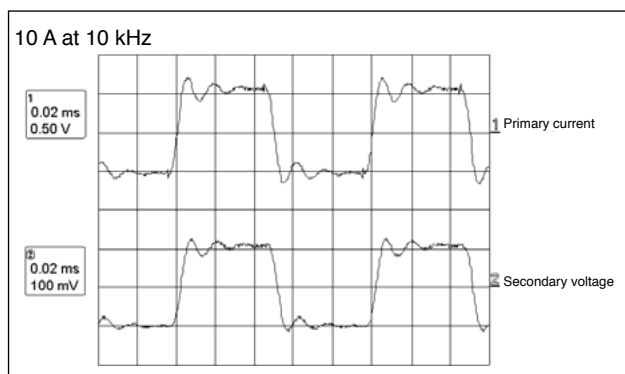
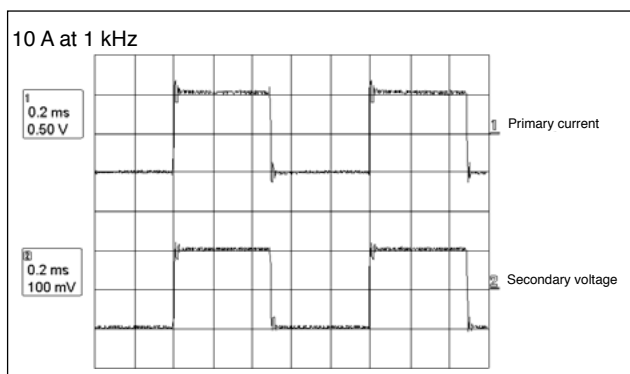
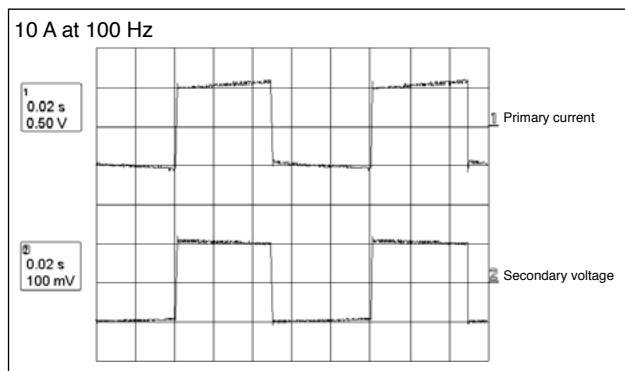
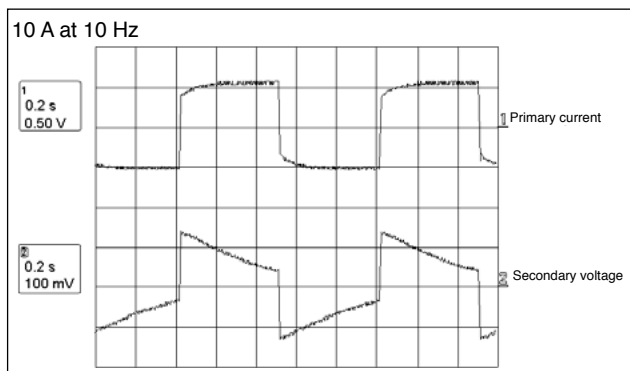
# Oscilloscope clamp for AC current

## Model C160 (insulated AC current probe)

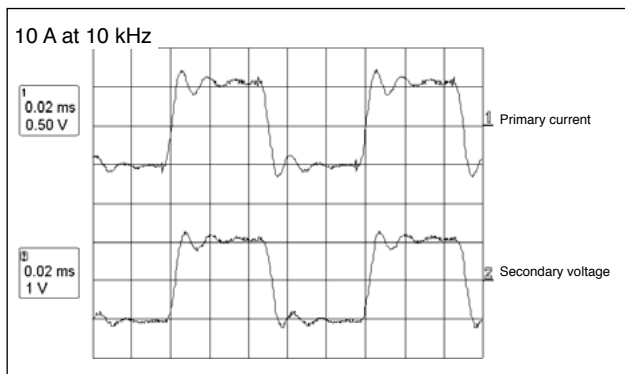
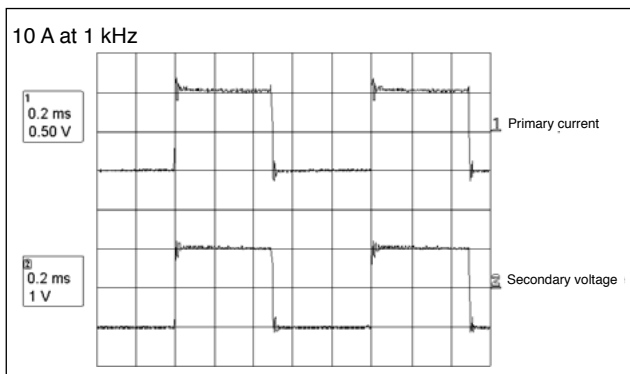
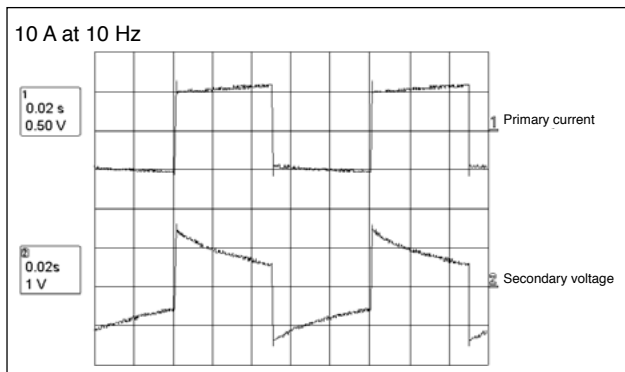
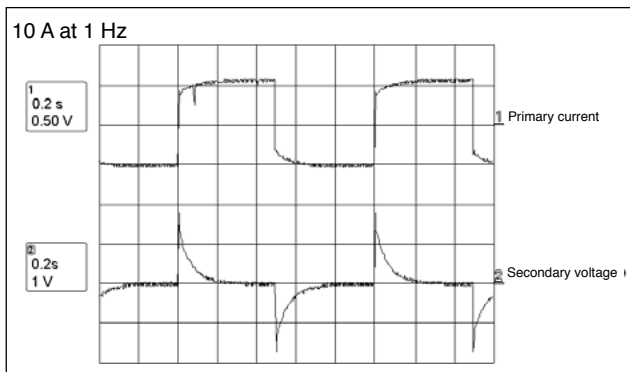
C100 series

### ■ Response to a square signal (cont.)

100 A calibre



10 A calibre



# Current clamp for AC current

## Model C173 (probe for leakage currents)

C100 series

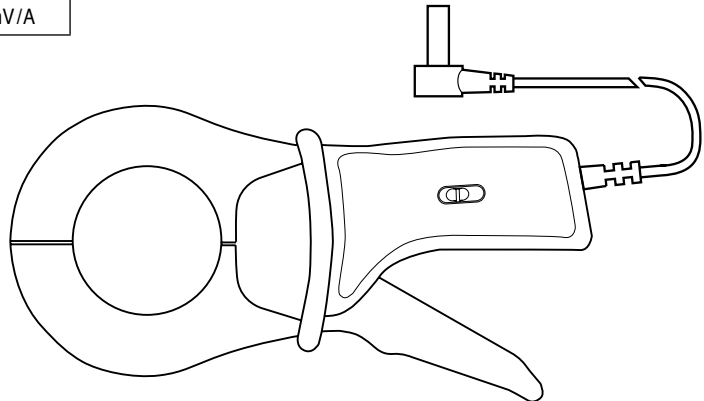
<b>Current</b>	1 A	10 A	100 A	1000 A
<b>Output</b>	1 V/A	100 mV/A	10 mV/A	1 mV/A

### Description

The C173 clamp measures leakage or differential currents from 1 mA upwards and can also be used with multimeters equipped with a range in mV AC.

The C173 clamp measures earth-loop currents and leakage currents. It also locates faults in circuits of single and three-phase networks.

For unearthed three-phase systems, use the optional Artificial Neutral.



### Electrical specifications

**Current calibres:**  
 0.001 A AC...1.2 A AC  
 0.01 A AC...12 A AC  
 0.1 A AC...120 A AC  
 1 A AC...1200 A AC

**Output signal:**  
 1 VAC/A AC (1 V for 1 A)  
 100 mVAC/A AC (1 V for 10 A)  
 10 mVAC/A AC (1 V for 100 A)  
 1 mVAC/A AC (1 V for 1000 A)

**Accuracy and phase shift<sup>(1)</sup>:**

#### 1 A calibre

Primary current	0.001 A...0.01 A	0.01 A...0.1 A	0.1 A...1 A	1 A...1.2 A
% Accuracy of output signal	≤ 3 % + 1 mV	≤ 3 % + 1 mV	≤ 0.7 % + 1 mV	≤ 0.7 % + 1 mV
Phase shift	not specified	not specified	≤ 10°	≤ 10°

#### 10 A calibre

Primary current	0.01 A...0.1 A	0.1 A...1 A	1 A...10 A	10 A...12 A
Accuracy in % of output signal	≤ 1 % + 0.2 mV	≤ 0.5 % + 0.2 mV	≤ 0.5 %	≤ 0.5 %
Phase shift	not specified	≤ 5°	≤ 2°	≤ 2°

#### 100 A calibre

Primary current	0.1 A...1 A	1 A...10 A	10 A...100 A	100 A...120 A
Accuracy in % of output signal	≤ 1 % + 0.2 mV	≤ 0.5 % + 0.2 mV	≤ 0.3 %	≤ 0.2 %
Phase shift	not specified	≤ 2°	≤ 1°	≤ 1°

#### 1000 A calibre

Primary current	1 A...10 A	10 A...100 A	100 A...1000 A	1000 A...1200 A
% Accuracy of output signal	≤ 1 % + 0.2 mV	≤ 0.5 % + 0.2 mV	≤ 0.2 %	≤ 0.2 %
Phase shift	not specified	≤ 2°	≤ 1°	≤ 1°

#### Bandwidth:

10 Hz ... 3 kHz

#### Crest factor:

- 1 A calibre:  
≤ 3 for I ≤ 3 A peak (1 Arms)
- 10 A calibre:  
≤ 3 for I ≤ 30 A peak (10 Arms)
- 100 A calibre:  
≤ 3 for I ≤ 300 A peak (100 Arms)
- 1000 A calibre:  
≤ 3 for I ≤ 1700 A peak (500 Arms)

#### Maximum currents:

1000 A continuous for a frequency ≤ 500 Hz (limitation proportional to the inverse of 1/2 of frequency beyond)

**Load impedance:**  
≥ 10 MΩ and ≤ 47 pF

#### Output impedance:

- 1 A calibre: 10 kΩ ± 10 %
- 10 A calibre: 1 kΩ ± 10 %
- 100 A calibre: 100 Ω ± 10 %
- 1000 A calibre: 100 Ω ± 10 %

#### Operating voltage:

600 Vrms

#### Common mode voltage:

600 V category III and pollution degree 2

#### Influence of adjacent conductor:

≤ 1 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.3 % of output signal for frequencies ≤ 400 Hz

#### Influence of frequency<sup>(2)</sup>:

- 1 A calibre:  
< 2 % of output signal 30 Hz...48 Hz and 65 Hz...1 kHz  
< 10 % of output signal 1 kHz...3 kHz
- 10 A calibre:  
< 2 % of output signal 10 Hz...48 Hz and 65 Hz...3 kHz
- 100 A calibre:  
< 1.5 % of output signal 10 Hz...48 Hz and 65 Hz...3 kHz
- 1000 A calibre:  
< 1 % of output signal 10 Hz...48 Hz and 65 Hz...1 kHz

#### Influence of crest factor:

≤ 0.5 % for crest factor limited to 3

#### Influence of DC current superimposed on rated current:

≤ 10 % at 1000 A for a DC current of 10 A

# Current clamp for AC current

## Model C173 (probe for leakage currents)

### ■ Mechanical specifications

**Operating temperature:**  
-10 °C ... +50 °C

**Storage temperature:**  
-40 °C ... +70 °C

**Influence of temperature:**  
≤ 0.15 % of output signal per 10 °K from -10 °C ... +40 °C  
≤ 0.2 % of output signal per 10 °K from +40 °C ... +50 °C

**Relative humidity for operation:**  
0 ... 85 % RH with a linear decrease above 35 °C

**Influence of relative humidity:**  
< 0.1 % of output signal from 10 % to 85 % RH

**Operating altitude:**  
0 to 2,000 m

**Max. jaw opening:**  
53 mm  
Patented progressive opening system

**Clamping capacity:**  
Cable: Ø max 52 mm  
Busbar: 1 busbar of 50 x 5 mm or 4 busbars of 30 x 5 mm

**Casing protection rating:**  
IP40 (IEC 529)

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

**Shock resistance:**  
100 g (IEC 68-2-27)

**Vibration resistance:**  
5/15 Hz 1.5 mm  
15/25 Hz 1 mm  
25/55 Hz 0.25 mm  
(IEC 68-2-6)

**Self-extinguishing capability:**  
UL94 V0

**Dimensions:**  
216 x 111 x 45 mm

**Weight:**  
550 g

**Colours:**  
Dark grey case with red jaws

**Output:**  
1.5 m two-wire lead with double or reinforced insulation terminated by 2 elbowed male safety plugs (4 mm)

### ■ Safety specifications

**Electrical safety:**  
Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032

- 600 V category III, pollution degree 2  
- 300 V category IV, pollution degree 2

**Electromagnetic compatibility (EMC):**  
EN 50081-1: class B

EN 50082-2:

- Electrostatic discharge: IEC 1000-4-2  
- Radiated field: IEC 1000-4-3  
- Fast transients: IEC 1000-4-4  
- Magnetic field at 50/60 Hz: IEC 1000-4-8

(1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sine signal, frequency of 48 Hz to 65 Hz, distortion factor < 1 %, no DC components, external magnetic field < 40 A/m, no AC magnetic field, conductor centred for measurement, load impedance: ≥ 10 MΩ and ≤ 47 pF

(2) Out of reference domain

To order	Reference
AC current clamp model <b>C173</b> with operating manual	P01120309
Accessory: <b>AN1</b> artificial neutral box (see chapter 12)	P01197201
Bag n°11	P01100120