



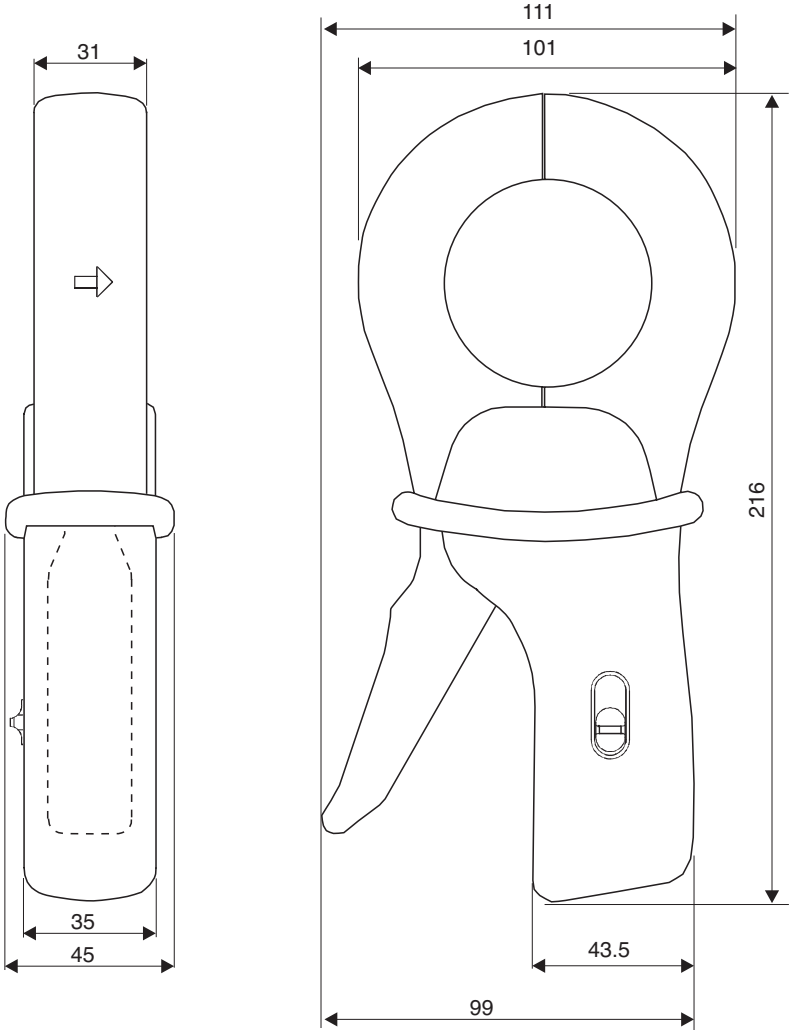
### "C 100" SERIES

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:

- 1,000 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), antislip 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	1,000 A
Ratio	1000/1
Output	1 mA/A

### ELECTRICAL SPECIFICATIONS

- **Current range:**  
0.1 A AC .. 1,200 A AC
- **Current transformation ratio:**  
1000:1
- **Output signal:**  
1 mA AC/A AC (1 A to 1,000 A)
- **Accuracy and phase shift <sup>(1)</sup>:**

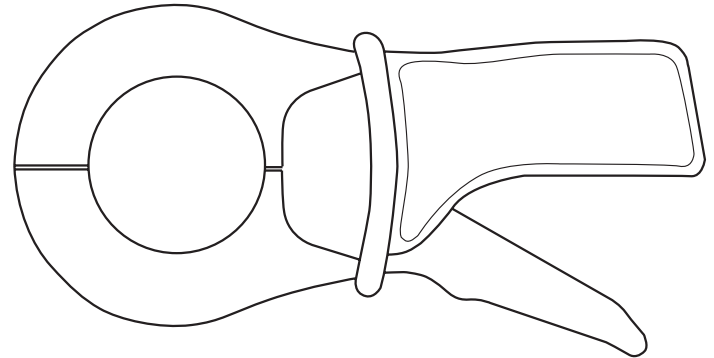
Primary current	0.1 A .. 10 A	10 A	50 A <sup>(2)</sup>	200 A <sup>(2)</sup>	1,000 A <sup>(2)</sup>	1,200 A <sup>(2)</sup>
% Accuracy of output signal	≤ 3% + 0.1 mA	≤ 3%	≤ 1.5%	≤ 0.75%	≤ 0.5%	≤ 0.5%
Phase shift	not specified	≤ 3°	≤ 1.5°	≤ 0.75°	≤ 0.5°	≤ 0.5°

- **Bandwidth:**  
30 Hz .. 10 kHz (-3 dB)
- **Crest factor:**  
≤ 6 for a current ≤ 3,000 A peak (500 A<sub>RMS</sub>)
- **Maximum currents:**  
1,000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse of frequency beyond)  
1,200 A for 40 minutes max (interval between measurements > 20 minutes)
- **Load impedance:**  
≤ 15 Ω
- **Operating voltage:**  
600 V<sub>RMS</sub>
- **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 ≤ 3,000 A peak (500 A<sub>RMS</sub>)

- **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, signal sinus, 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 <b>C100</b> with operating manual	P01120301

# Current clamps for AC current

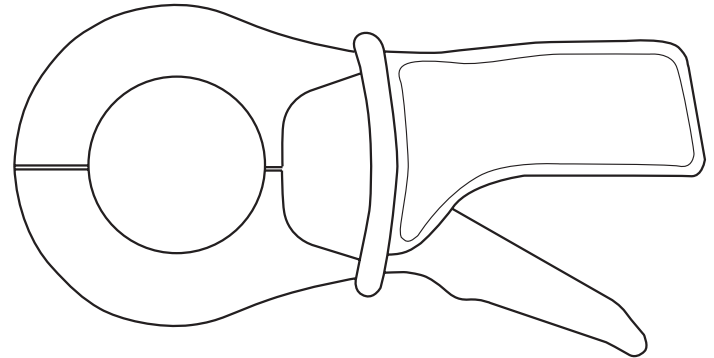
## Models C102 and C103

C100 series

Current	1,000 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 range:**  
0.1 A AC .. 1,200 A AC
- **Current transformation ratio:**  
1000:1
- **Output signal:**  
1 mA AC / A AC (1 A to 1,000 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>	1,000 A <sup>(2)</sup>	1,200 A <sup>(2)</sup>
% Accuracy 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 ≤ 3,000 A peak (500 A<sub>RMS</sub>)
- **Maximum currents:**  
1,000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse of frequency beyond)  
1,200 A for 40 minutes max (interval between measurements > 20 minutes)
- **Load impedance:**  
≤ 15 Ω
- **Max. voltage output:**  
Electronic protection circuit limiting voltage to 30 V peak max
- **Operating voltage:**  
600 V<sub>RMS</sub>
- **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 ≤ 3,000 A peak (500 A<sub>RMS</sub>)
- **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 (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, signal sinus, 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	1,000 A
Output	1 mV/A

### ELECTRICAL SPECIFICATIONS

- **Current range:**  
0.1 A AC .. 1,200 A AC
- **Output signal:**  
1 mV AC/A AC (1 V for 1,000 A)
- **Accuracy and phase shift (1):**

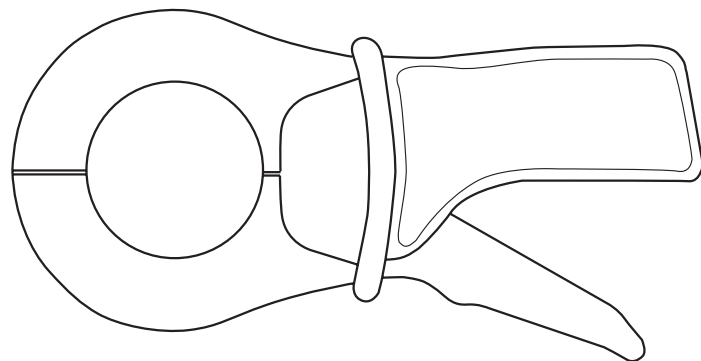
Primary current	0.1 A .. 10 A	10 A	50 A	200 A	1,000 A	1,200 A
% Accuracy of output signal	≤ 3% + 0.1 mV	≤ 3%	≤ 1.5%	≤ 0.75%	≤ 0.5%	≤ 0.5%
Phase shift	not specified	≤ 3°	≤ 1.5°	≤ 0.75°	≤ 0.5°	≤ 0.5°

- **Bandwidth:**  
30 Hz .. 10 kHz
- **Crest factor:**  
≤ 6 for a current ≤ 3,000 A peak (500 A<sub>RMS</sub>)
- **Maximum currents:**  
1,000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse frequency beyond)  
1,200 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<sub>RMS</sub>
- **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 (2):**  
< 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 ≤ 3,000 A peak (500 A<sub>RMS</sub>)
- **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 (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, signal sinus, 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	1,000 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 range:**  
0.001 A AC .. 1,200 A AC
- **Current transformation ratio:**  
1000:1
- **Output signal:**  
1 mA AC / A AC (1 A for 1,000 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 .. 1,200 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  $\leq 2,000$  A peak (300 A<sub>RMS</sub>)
- **Maximum currents:**  
1,000 A continuous for a frequency  $\leq 1$  kHz (limitation proportional to the inverse of frequency beyond)  
1,200 A for 40 minutes max (interval between measurements > 20 minutes)
- **Load impedance:**  
 $\leq 1 \Omega$
- **Max. voltage output:**  
Electronic protection circuit limiting voltage to 30 V peak max
- **Operating voltage:**  
600 V<sub>RMS</sub>
- **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  $\leq 2,000$  A peak (300 A<sub>RMS</sub>)
- **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  $10^\circ\text{C}$
- **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  $50 \times 5$  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:**  
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 (4 mm)

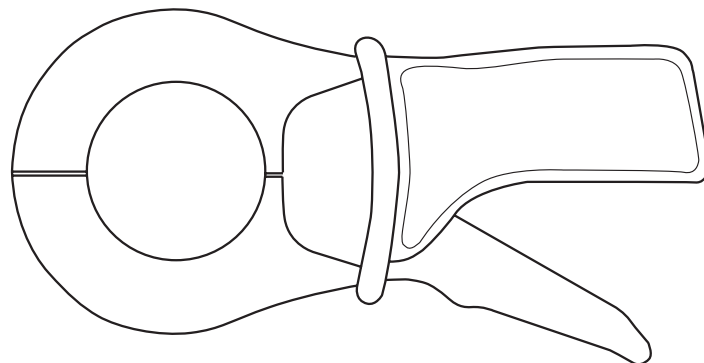
### SAFETY SPECIFICATIONS

- **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, signal sinus, 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  $1 \Omega$  (1 VA)

(2) Out of reference domain.

To order	Reference
AC current clamp model <b>C112</b> with operating manual	P01120314
AC current clamp model <b>C113</b> with operating manual	P01120315



# Current clamps for AC current

## Models C116 and C117

C100 series

Current	1,000 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 range:**  
0.001 A AC .. 1,200 A AC
- Output signal:**  
1 mVAC/A AC (1 V for 1,000 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 .. 1,200 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  $\leq 2,000$  A peak (300 A<sub>RMS</sub>)
- Maximum currents:**  
1,000 A continuous for a frequency  $\leq 1$  kHz (limitation proportional to the inverse of frequency beyond)  
1,200 A for 40 minutes max (interval between measurements > 20 minutes)
- Output impedance:**  
 $1 \Omega \pm 1\%$
- Load impedance:**  
 $\geq 1 \text{ M}\Omega$  and  $\leq 100 \text{ pF}$
- Operating voltage:**  
600 V<sub>RMS</sub>
- Common mode voltage:**  
600 V category III and pollution degree 2
- Influence of adjacent conductor:**  
 $\leq 0.5 \text{ mA/A}$  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  $1 \text{ k}\Omega$ :  
 $\leq 0.1\%$  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  $\leq 2,000$  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:**  
 $-10^\circ\text{C}$  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 decreasing linearly 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:  $\emptyset$  max 52 mm  
Busbar: 1 busbar of  $50 \times 5 \text{ mm}$  /  
4 busbars of  $30 \times 5 \text{ mm}$
- 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,  $\emptyset$  4 mm

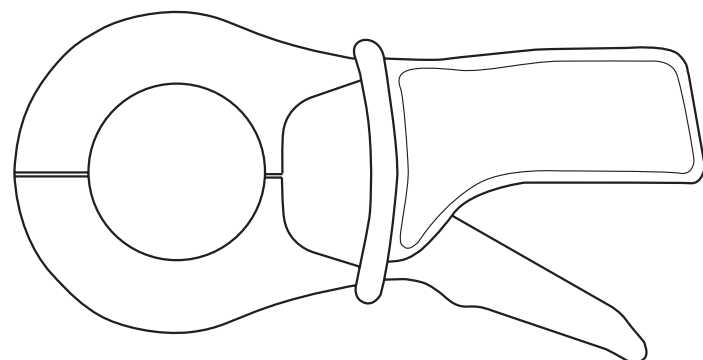
### SAFETY SPECIFICATIONS

- 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, signal sinus, frequency of 48 Hz to 65 Hz, distortion factor  $< 1\%$ , no DC components, external magnetic field  $< 40 \text{ A/m}$ , no AC magnetic field, conductor centred for measurement, load impedance  $\geq 1 \text{ M}\Omega$  and  $\leq 100 \text{ pF}$

(2) Out of reference domain

To order	Reference
AC current clamp model <b>C116</b> with operating manual	P01120316
AC current clamp model <b>C117</b> with operating manual	P01120317





# Current clamp for AC current

## Model C122

C100 series

Current	1,000 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 range:**  
1 A AC .. 1,200 A AC
- **Current transformation ratio:**  
1000:5
- **Output signal:**  
5 mA AC / A AC (5 A for 1,000 A)
- **Accuracy and phase shift <sup>(1)</sup>:**

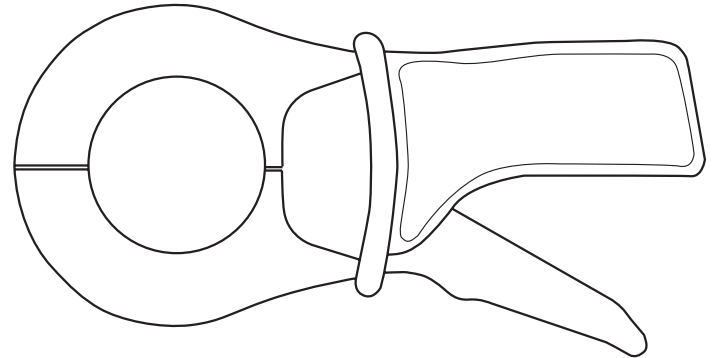
Primary current	1 A .. 20 A	20 A	50 A <sup>(2)</sup>	200 A <sup>(2)</sup>	1,000 A <sup>(2)</sup>	1,200 A <sup>(2)</sup>
Accuracy en %	≤ 6% + 0.5 mA	≤ 5%	≤ 3%	≤ 1.5%	≤ 1%	≤ 1%
Phase shift	not specified	≤ 3°	≤ 3°	≤ 1.5°	≤ 1°	≤ 1°

- **Bandwidth:**  
30 Hz .. 10 kHz
- **Crest factor:**  
≤ 6 for a current ≤ 3,000 A peak (500 A<sub>RMS</sub>)
- **Maximum currents:**  
1,000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse of frequency beyond)  
1,200 A for 30 minutes max (interval between measurements > 15 minutes)
- **Load impedance:**  
≤ 0.6 Ω
- **Impedance of connection leads:**  
≤ 40 mΩ
- **Maximum output voltage (secondary open):**  
Electronic protection circuit limiting voltage to 30 V peak max
- **Operating voltage:**  
600 V<sub>RMS</sub>
- **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 ≤ 3,000 A peak (500 A<sub>RMS</sub>)
- **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, signal sinus, 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 <b>C122</b> with operating manual	P01120306



# Current clamp for AC current

## Model C148

C100 series



<b>Current</b>	250 A AC	500 A AC	1,000 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 range:**  
1 A AC .. 300 A AC  
1 A AC .. 600 A AC  
1 A AC .. 1,200 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 1,000 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 en %	≤ 10 % + 2 mA	≤ 10 %	≤ 5 %	≤ 2.5 %	≤ 2 %	≤ 2 %
Phase shift	not specified	not specified	≤ 10°	≤ 10°	≤ 10°	≤ 10°

- 500 A calibre

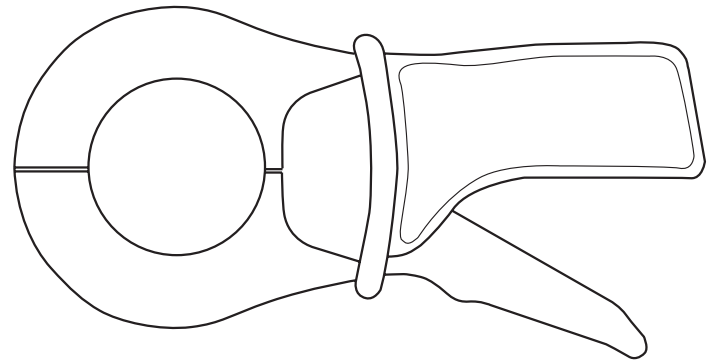
Primary current	1 A .. 10 A	10 A	25 A <sup>(3)</sup>	100 A <sup>(3)</sup>	500 A <sup>(3)</sup>	600 A <sup>(3)</sup>
Accuracy en %	≤ 6 % + 1 mA	≤ 6 %	≤ 3 %	≤ 2 %	≤ 1 %	≤ 1 %
Phase shift	not specified	≤ 6°	≤ 4°	≤ 3°	≤ 2.5°	≤ 2.5°

- 1,000 A calibre

Primary current	1 A .. 20 A	20 A	50 A <sup>(4)</sup>	200 A <sup>(4)</sup>	1,000 A <sup>(4)</sup>	1,200 A <sup>(4)</sup>
Accuracy en %	≤ 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 ≤ 1,500 A peak
  - 1,000 A calibre:  
≤ 6 with current ≤ 3,000 A peak
- **Maximum currents:**  
1,200 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
  - 1,000 A calibre: ≤ 0.4 Ω
- **Impedance of connection leads:**  
≤ 40 mΩ

- **Maximum output voltage (secondary open):**  
Electronic protection circuit limiting voltage to 30 V peak max
- **Operating voltage:**  
600 V<sub>RMS</sub>
- **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
  - 1,000 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
  - 1,000 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
  - 1,000 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
  - 1,000 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 (calibre 250 A)  
≤ 1,500 A peak (calibre 500 A)  
≤ 3,000 A peak (1,000 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:**  
From 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
  - 1,000 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 jacks (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, signal sinus, 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)  
- 1,000 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

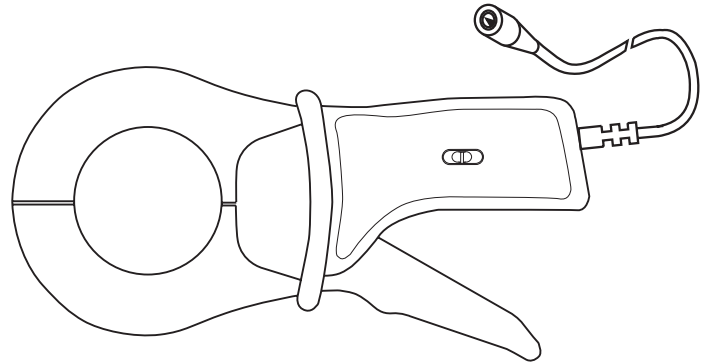
To order	Reference
AC current clamp model <b>C148</b> with operating manual	P01120307

### Model C160 (insulated AC current probe)

<b>Current</b>	30 A peak	300 A peak	2,000 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 range:**  
0.1 A AC .. 10 A AC (30 A peak)  
1 A AC .. 100 A AC (300 A peak)  
1 A AC .. 1,000 A AC (2,000 A peak)

- **Output signal:**  
100 mV AC / A AC (1 V for 10 A)  
10 mV AC / A AC (1 V for 100 A)  
1 mA AC / A AC (1 V for 1,000 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	≤ 3% + 10 mV	≤ 3% + 10 mV	≤ 3% + 10 mV	≤ 3% + 10 mV
Phase shift	not specified	not specified	≤ 15°	≤ 15°

- 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	≤ 2% + 5 mV	≤ 2% + 5 mV	≤ 2% + 5 mV	≤ 2% + 5 mV
Phase shift	not specified	≤ 15°	≤ 10°	≤ 5°

- 1,000 A calibre

Primary current	1 A .. 50 A	50 A .. 200 A	200 A .. 1,000 A	1,000 A .. 1,200 A
% Accuracy of output signal	≤ 1% + 1 mV	≤ 1% + 1 mV	≤ 1% + 1 mV	≤ 1% + 1 mV
Phase shift	not specified	≤ 3°	≤ 2°	≤ 1°

- **Bandwidth:**  
10 Hz .. 100 kHz (-3 dB)  
(depending on current value)
- **Rise/fall time from 10 % to 90 %:**  
3.5 μs
- **10 % delay time:**  
0.5 μs
- **Ampere second product:**
  - 10 A calibre: 3.2 A.s
  - 100 A calibre: 26 A.s
  - 1,000 A calibre: 64 A.s

- **Maximum currents:**  
1,000 A permanent  
1,200 A for 40 minutes max. / > 20 minutes shutdown for a frequency ≤ 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 mΩ / < 6.6 mΩ
  - 100 A calibre: < 0.3 mΩ / < 2 mΩ
  - 1,000 A calibre: < 0.3 mΩ / < 1.6 mΩ
- **Output impedance at 1 kHz:**
  - 10 A calibre: ≤ 515 Ω ± 10 %
  - 100 A calibre: ≤ 515 Ω ± 10 %
  - 1,000 A calibre: ≤ 515 Ω ± 10 %

- **Influence of temperature:**  
≤ 150 ppm / k or 0.15 % of output signal per 10 °K
- **Influence of relative humidity:**  
< 0.1 % of output signal
- **Influence of adjacent conductor:**  
≤ 1 mA / A at 50 Hz
- **Influence of DC current ≤ 30 A superimposed on rated current:**  
< 1 %
- **Influence of conductor position in jaws:**  
≤ 0.1 % of output signal for frequencies ≤ 400 Hz
- **Influence of frequency <sup>(2)</sup>:**
  - 10 A calibre:  
< 10 % of output signal from 10 Hz .. 1 kHz  
< 5 % of output signal from 1 kHz .. 10 kHz  
< 20 % of output signal from 10 kHz .. 50 kHz  
3 dB of output signal from 50 kHz .. 100 kHz
  - 100 A calibre:  
< 5 % of output signal from 10 Hz .. 1 kHz  
< 3 % of output signal from 1 kHz .. 10 kHz  
< 20 % of output signal from 10 kHz .. 50 kHz  
3 dB of output signal from 50 kHz .. 100 kHz
  - 1,000 A calibre:  
< 1 % of output signal from 10 Hz .. 1 kHz  
< 2 % of output signal from 1 kHz .. 10 kHz  
< 10 % of output signal from 10 kHz .. 50 kHz  
3 dB of output signal from 50 kHz .. 100 kHz
- **Influence of crest factor:**  
< 1 % of output signal for crest factor ≤ 6 with current
  - 10 A calibre: ≤ 30 A peak
  - 100 A calibre: ≤ 300 A peak
  - 1,000 A calibre: ≤ 3,000 A peak

#### MECHANICAL SPECIFICATIONS

- **Max. jaw opening:**  
53 mm
- **Clamping capacity:**  
Cable: Ø 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:**  
Via 2 m coaxial cable terminated by 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 ± 3 °K, 20 % to 75 % RH, signal sinus, frequency of 48 Hz à 1,000 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: ≥ 1 MΩ and < 100 pF

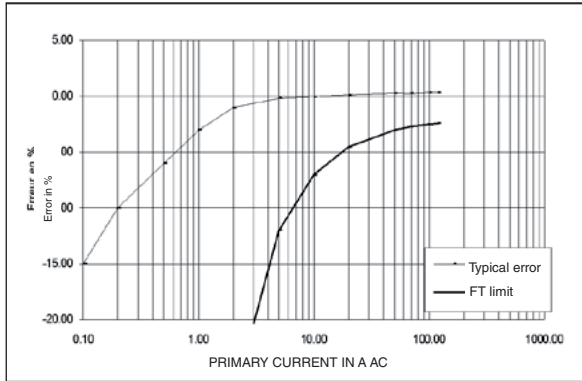
(2) Out of reference domain

To order	Reference
AC current clamp model <b>C160</b> with operating manual	P01120308

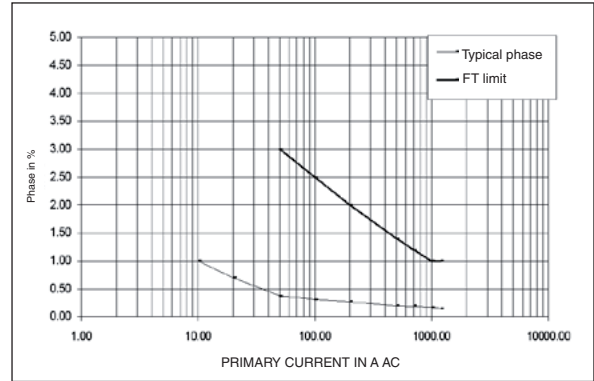
#### CURVES AT 50 Hz

##### 1,000 A calibre

Error on measurement

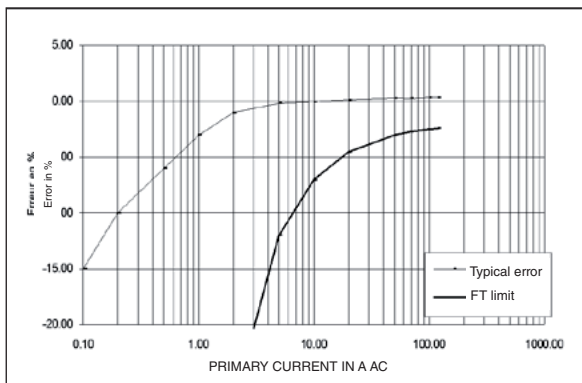


Phase shift

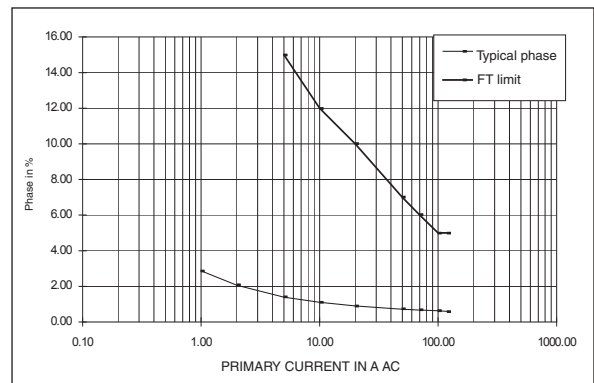


##### 100 A calibre

Error on measurement

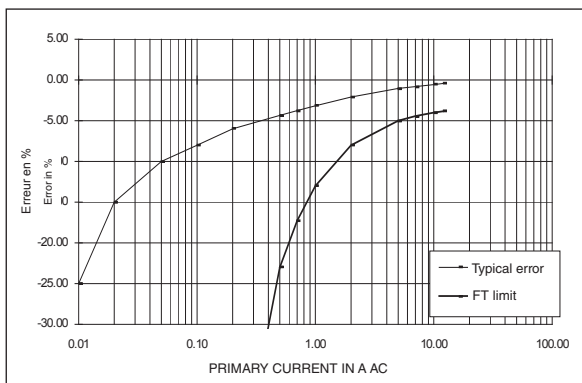


Phase shift

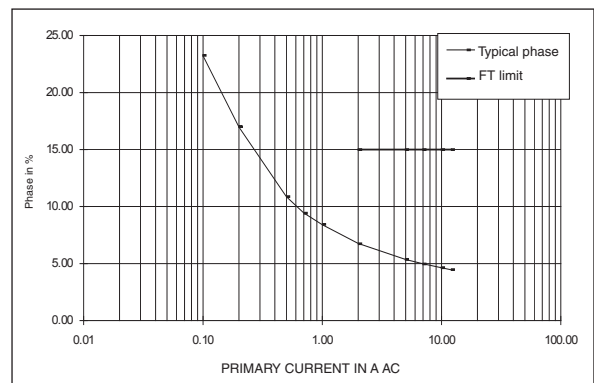


##### 10 A calibre

Error on measurement

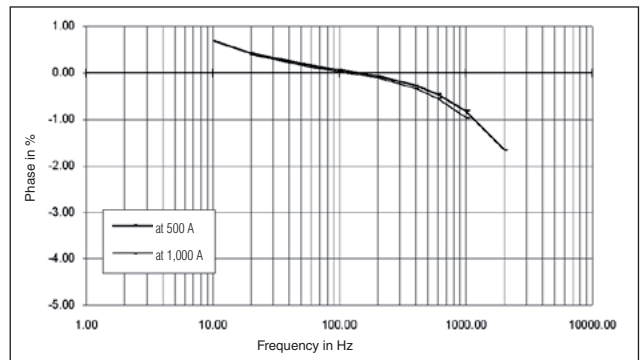
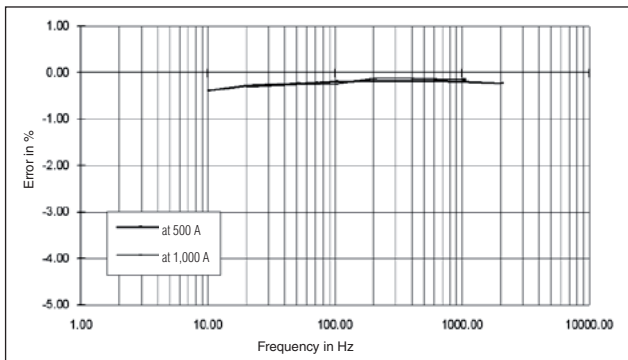
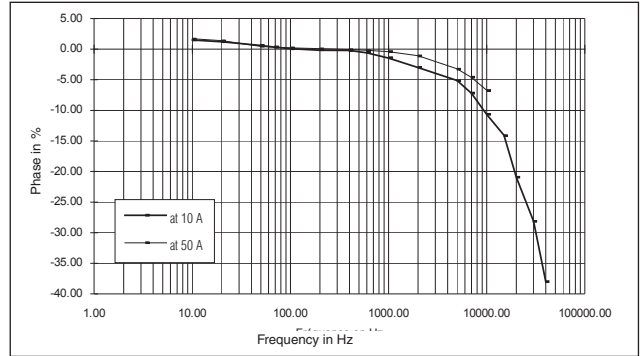
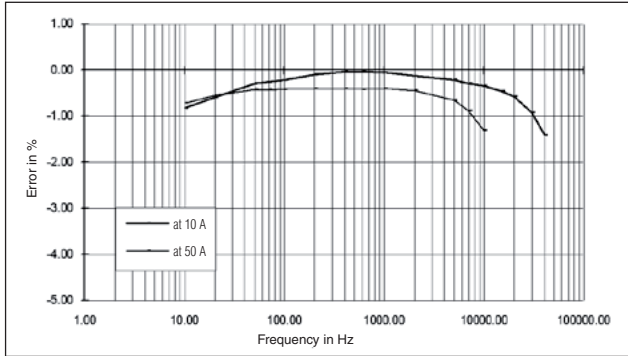


Phase shift

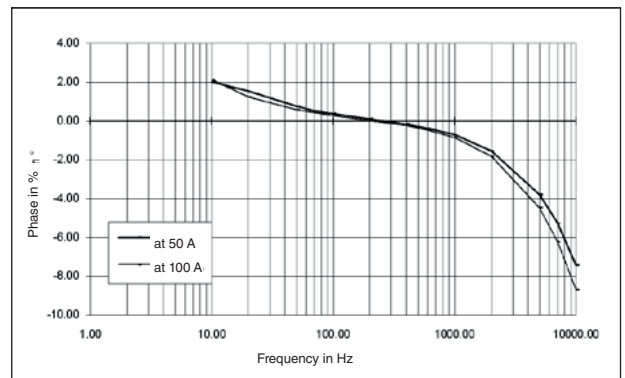
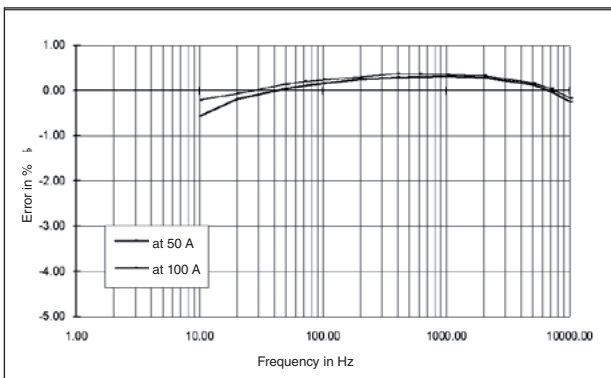
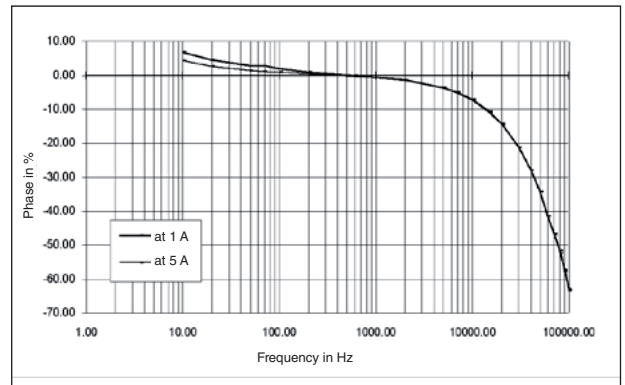
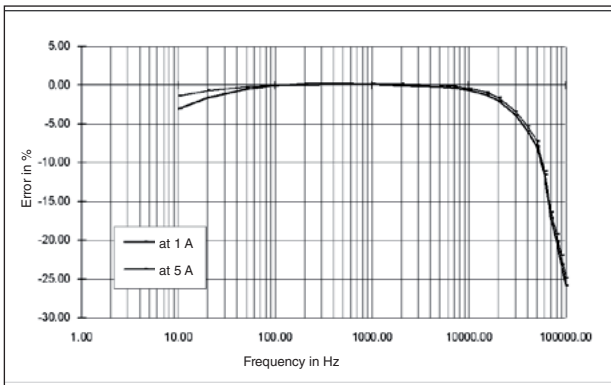


#### FREQUENCY RESPONSE (CONT.)

1,000 A calibre

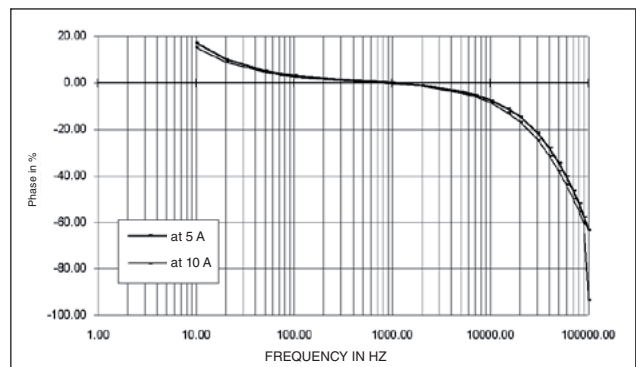
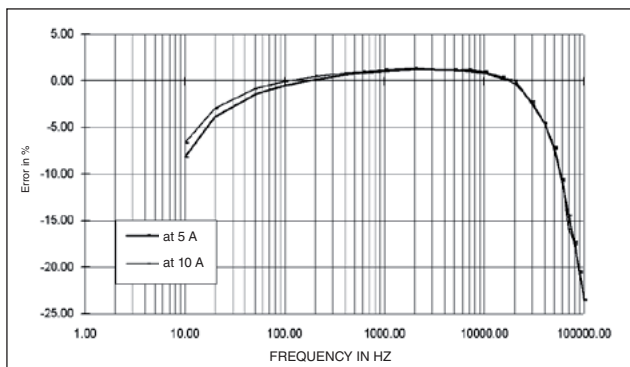
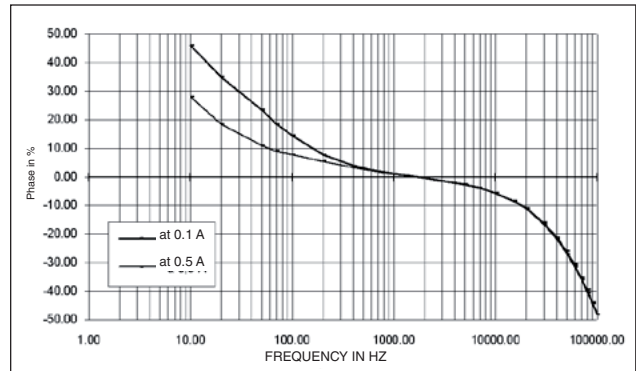
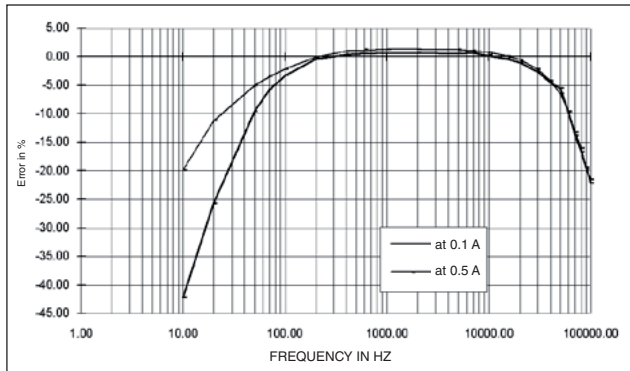


100 A calibre



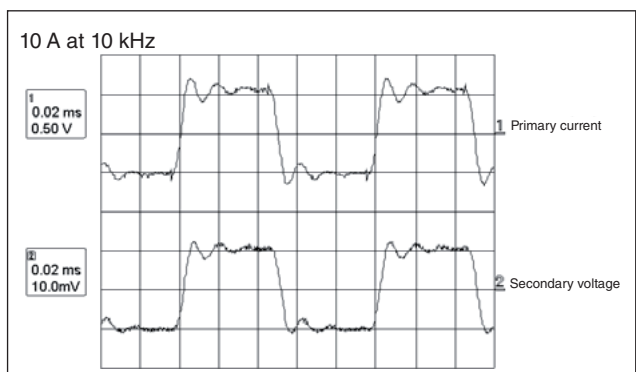
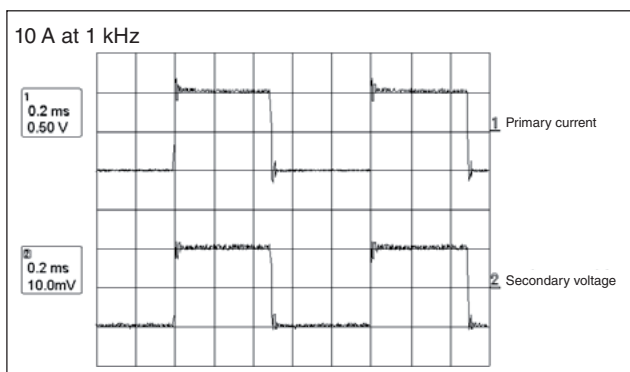
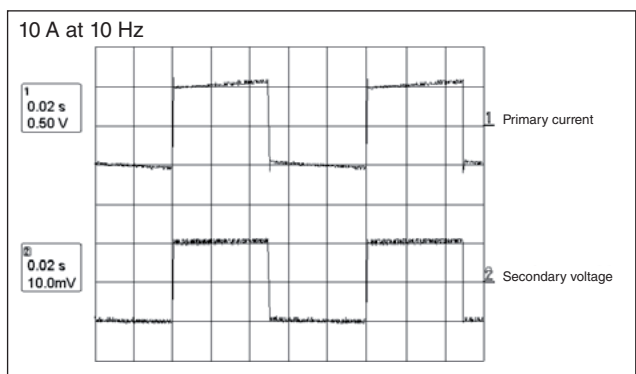
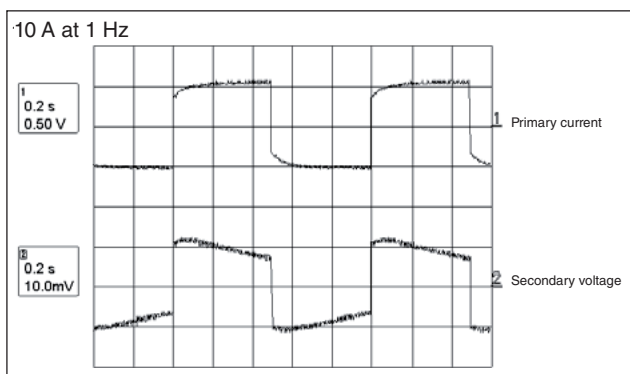
#### FREQUENCY RESPONSE (CONT.)

10 A calibre



#### RESPONSE TO A SQUARE SIGNAL

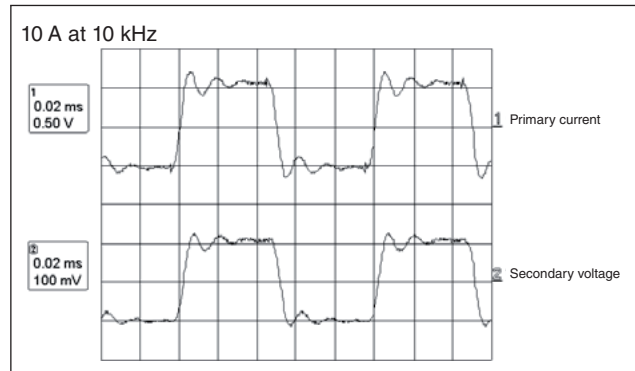
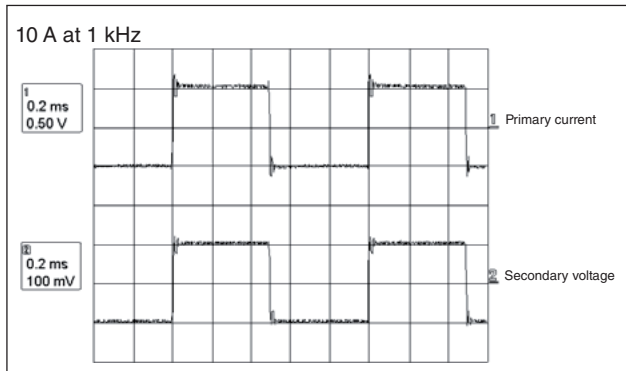
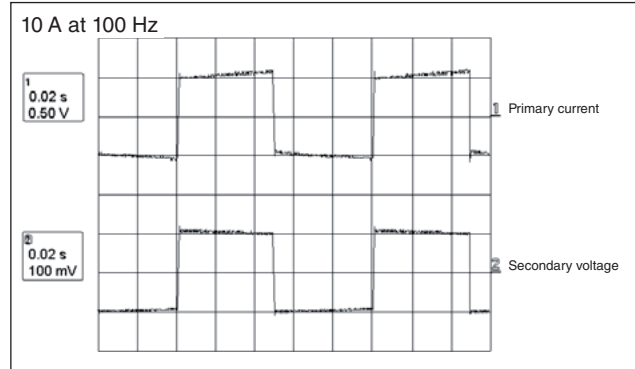
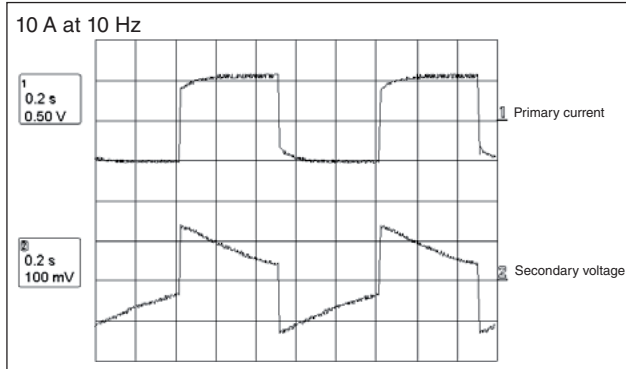
1,000 A calibre



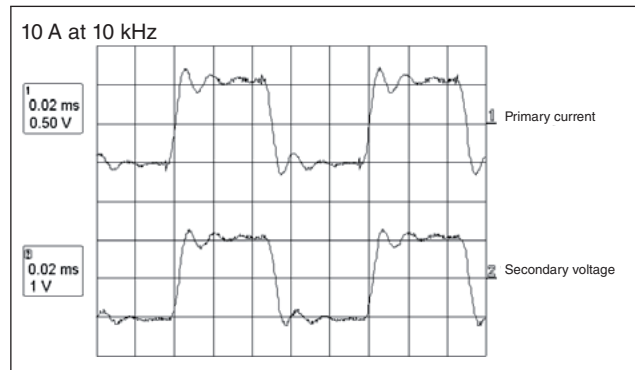
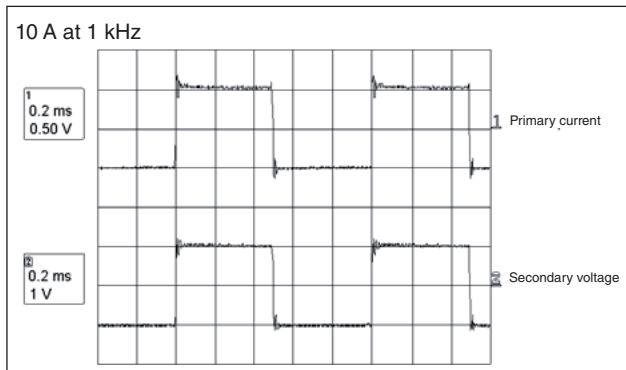
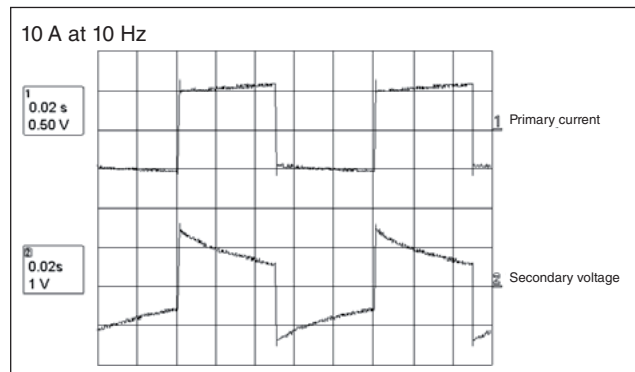
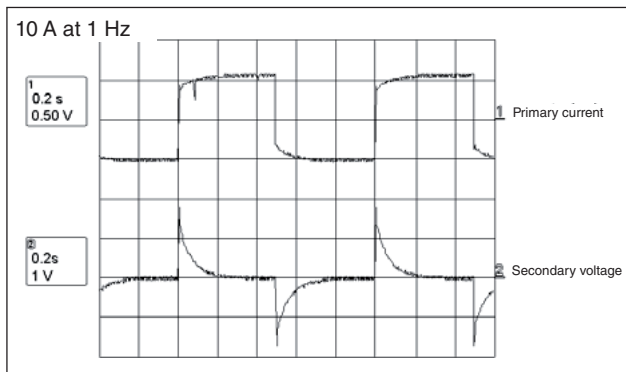


#### RESPONSE TO A SQUARE SIGNAL (CONT.)

100 A calibre



10 A calibre



# Current clamp for AC current

## Model C173 (probe for leakage currents)

C100 series

Current	1 A	10 A	100 A	1,000 A
Output	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 range:**  
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 .. 1,200 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 1,000 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 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

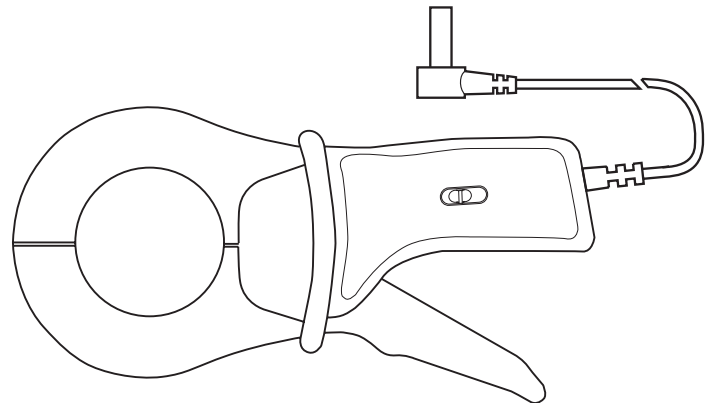
Primary current	0.1 A .. 1 A	1 A .. 10 A	10 A .. 100 A	100 A .. 120 A
% Accuracy of output signal	≤ 1% + 0.2 mV	≤ 0.5% + 0.2 mV	≤ 0.3%	≤ 0.2%
Phase shift	not specified	≤ 2°	≤ 1°	≤ 1°

- 1,000 A calibre

Primary current	1 A .. 10 A	10 A .. 100 A	100 A .. 1,000 A	1,000 A .. 1,200 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 A<sub>RMS</sub>)
  - 10 A calibre:  
≤ 3 for I ≤ 30 A peak (10 A<sub>RMS</sub>)
  - 100 A calibre:  
≤ 3 for I ≤ 300 A peak (100 A<sub>RMS</sub>)
  - 1,000 A calibre:  
≤ 3 for I ≤ 1700 A peak (500 A<sub>RMS</sub>)

- **Maximum currents:**  
1,000 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%
  - 1,000 A calibre: 100 Ω ± 10%



- **Operating voltage:**  
600 V<sub>RMS</sub>
- **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
  - 1,000 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 1,000 A for a current DC from 10 A

#### 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:**  
From 0 .. 85 % from RH decreasing linearly above 35 °C
- **Influence of relative humidity:**  
< 0.1 % of output signal from 10 .. 85 % from 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, signal sinus, 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) <b>Bag n°11</b>	P01197201 P01100120