

Current clamp for AC current

Model C173 (probe for leakage currents)

C100 series

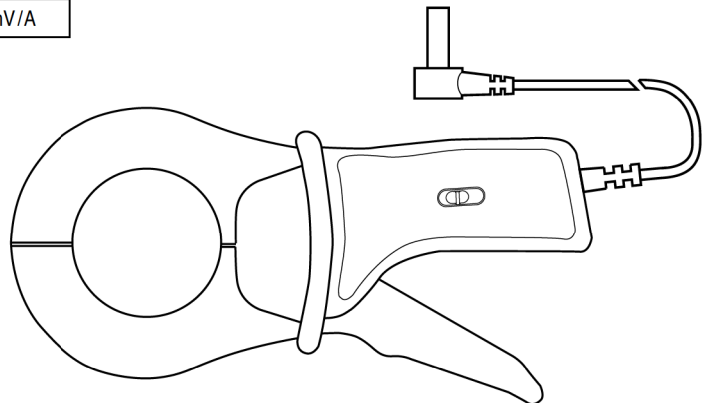
Current	1 A	10 A	100 A	1000 A
Output	1 V/A	100 mV/A	10 mV/A	1 mV/A

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 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⁽¹⁾:

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⁽²⁾:

- 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

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■ 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 C173 with operating manual	P01120309
Accessory: AN1 artificial neutral box (see chapter 12)	P01197201
Bag n°11	P01100120