

# Datenblatt

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## MINI series

Small, compact and particularly resistant, this range of miniature clamps is designed for measurements from a few milli-amperes to 150 A AC. Their shape makes them very practical in confined spaces, such as circuit-breaker boards, control panels or control boxes. They are ideal for use with multimeters.

There are two types of MINI clamps.

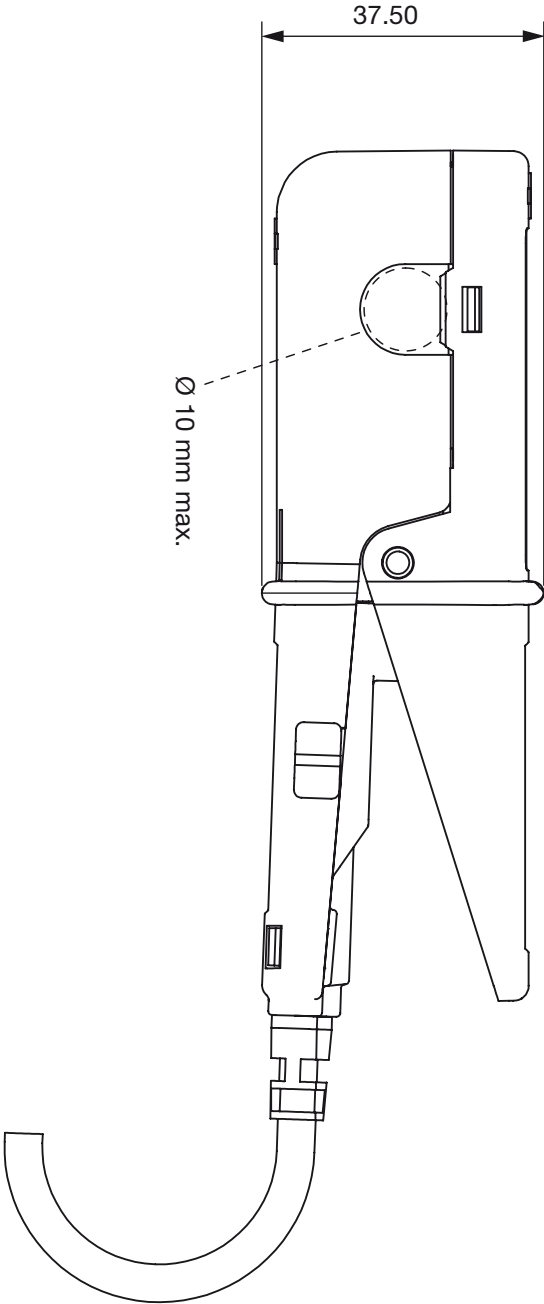
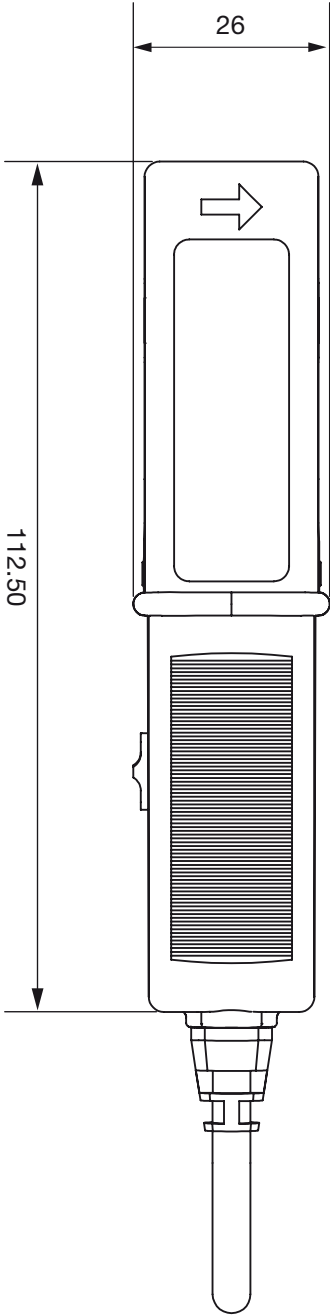
The first type operates like a traditional current transformer and provides a current output (mA) which can be used with multimeters, loggers or instruments with current calibres.

The second provides a voltage output proportional to the current measured.

This voltage output enables instruments with AC voltage calibres to display or store current values.

There is also a model with a DC voltage output.

The MINI clamps give True RMS results when used with a True RMS instrument.



# Current clamp for AC current

## Model MINI 01

MINI series

Calibre	150 A AC
Sensitivity	1 mA/A (1000/1)



### Description

Small and compact, the MINI 01 current clamp is the ideal complement for any multimeter to measure AC currents in low-power tertiary or industrial applications. If there is a current in the conductor clamped, the MINI 01 clamp is protected against overvoltages during disconnection from the measurement instrument.

### Main specifications <sup>(1)</sup>

Calibre	150 A
Measurement range	2 A...150 A
Accuracy of primary current in %	≤ 2.5 % + 0.15 A (load 1 Ω) ≤ 3 % + 0.15 A (load 10 Ω)
Phase shift	not specified
Output signal	1 mA AC/A AC (1000/1) (150 mA for 150 A)

#### Output:

Double-insulated cable 1.5 m long, terminated by 2 insulated elbowed male banana connectors Ø 4 mm

#### Bandwidth:

48 Hz...500 Hz

#### Clamping capacity:

Cable Ø max 10 mm

### Electrical specifications

#### Load impedance:

≤ 10 Ω

#### Maximum currents:

I < 150 A permanent from 48 Hz...500 Hz

#### Influence of temperature:

≤ 0.2 % per 10 °K

#### Influence of adjacent conductor:

≤ 2 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % at 50/60 Hz

#### Influence of frequency:

≤ 2 % from 65 Hz to 500 Hz

#### Maximum output voltage (secondary open):

30 V

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +80 °C

#### Relative humidity for operation:

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

#### Operating altitude:

0 to 2,000 m

#### Casing protection rating (leakproofing):

IP40 <sup>(2)</sup> (EN 60529 Ed. 1992)

#### Drop test:

1.5 m (IEC 68-2-32)

#### Shock resistance:

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

#### Vibration resistance <sup>(3)</sup>:

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 UL94 V2

#### Dimensions:

130 x 37 x 25 mm

#### Weight:

approx. 180 g

#### Colour:

Black casing

### 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 EN 61010-1 Ed. 2:2001, EN 61010-2-031 Ed. 2002 & EN 61010-2-032 Ed. 2003

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

#### Electromagnetic compatibility:

CE-certified equipment compliant with standard EN 61326-1 (Ed.97) + A1 (Ed.98) + A2 (Ed.01)

- Emission: stipulations for class B equipment (domestic use).
- Immunity: stipulations for equipment used intermittently on industrial sites.

(1) Conditions of reference: 23 °C ± 3 °K, 20 °C to 75 % RH, sinusoidal signal with frequency of 48 Hz to 65 Hz, distortion factor < 1 % with no DC component, external DC magnetic field < 40 A/m, no external AC magnetic field, no external conductor with circulating current, conductor centred for measurement, measurement instrument load impedance ≤ 10 Ω.

(2) With clamp closed.

(3) Vibrations expressed in mm peak, scanning of 1 octave/minute for 10 minutes on 3 axes.

To order	Reference
AC current clamp model MINI 01 with operating manual	P01105101Z

# Current clamp for AC current

## Model MINI 02

MINI series

Calibre	100 AAC
Sensitivity	1 mA/A (1000/1)

### Description

The MINI 02 current clamp, whose jaws are equipped with a high-performance magnetic material and a double coil, offers excellent linearity and improved performance.

Small and compact, it is ideal for measuring AC currents in low-power tertiary or industrial applications.

If a current is present in the conductor being clamped, the MINI 02 clamp is protected against voltage surges when it is disconnected from the measurement instrument.



### Main specifications <sup>(1)</sup>

Calibre	100 A
Measurement range	50 mA .. 100 A (load 1 Ω) 50 mA .. 90 A (load 10 Ω)
Accuracy of primary current in % (48 Hz to 10 kHz)	≤ 1 % + 0.02 A (load 1 Ω) ≤ 1.5 % + 0.01 A (load 10 Ω)
Phase shift (50 Hz to 60 Hz)	≤ 3° (load 1 Ω) ≤ 6° (load 10 Ω)
Output signal	1 mA AC/A AC (1000/1) (100 mA for 100 A)

#### Output:

Double-insulated cable 1.5 m long, terminated by 2 insulated elbowed male banana connectors Ø 4 mm

#### Bandwidth:

48 Hz ... 10 000 Hz

#### Clamping capacity:

Cable Ø max 10 mm

### Electrical specifications

#### Load impedance:

≤ 100 Ω

#### Influence of load impedance:

see curves

#### Maximum currents:

I < 100 A permanent from 48 Hz ... 10,000 Hz

#### Influence of temperature:

≤ 0.2 % per 10 °K

#### Influence of adjacent conductor:

≤ 2 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % at 50/60 Hz

#### Influence of frequency:

≤ 2 % from 65 Hz to 10 kHz

#### Maximum output voltage (secondary open):

≤ 30 V

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +80 °C

#### Relative humidity for operation:

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

#### Operating altitude:

0 to 2,000 m

#### Casing protection rating (leakproofing):

IP40 <sup>(2)</sup> (EN 60529 Ed. 1992)

#### Drop test:

1.5 m (IEC 68-2-32)

#### Shock resistance:

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

#### Vibration resistance <sup>(3)</sup>:

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 UL94 V2

#### Dimensions:

130 x 37 x 25 mm

#### Weight:

Approx. 180 g

#### Colour:

Black casing

### 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 EN 61010-1 Ed. 2:2001, EN 61010-2-031 Ed. 2002 & EN 61010-2-032 Ed. 2003

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility:

CE-certified equipment compliant with standard EN 61326-1 (Ed.97) + A1 (Ed.98) + A2 (Ed.01)

- Emission: stipulations for class B equipment (domestic use).

- Immunity: stipulations for equipment used intermittently on industrial sites.

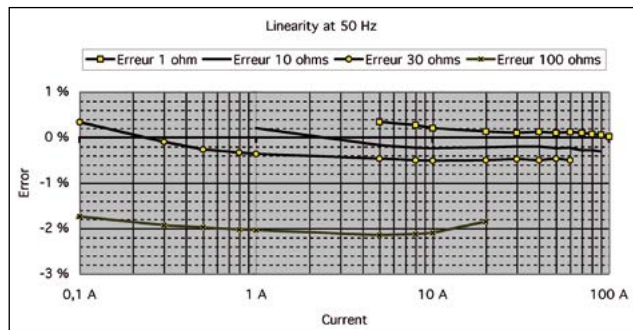
# Current clamp for AC current

## Model MINI 02

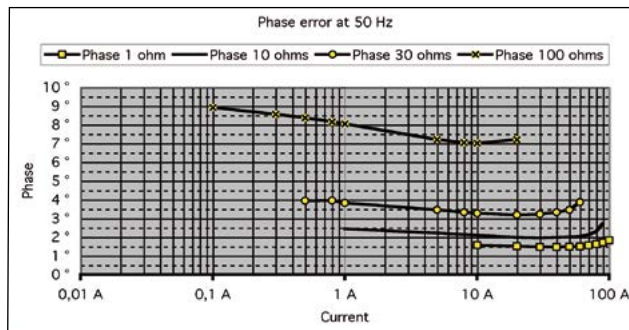
MINI series

### Curves at 50 Hz

Typical linearity error for loads of 1, 10, 30 and 100 Ω

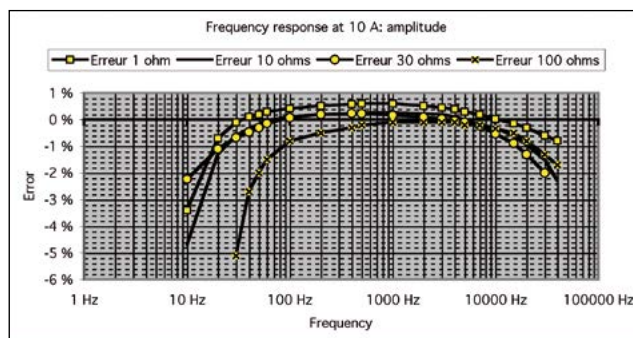


Typical phase shift for loads of 1, 10, 30 and 100 Ω

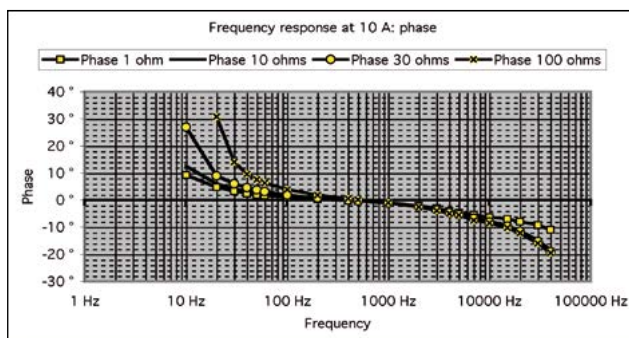


### Frequency response at 10 A

Typical linearity error for loads of 1, 10, 30 and 100 Ω



Typical phase shift for loads of 1, 10, 30 and 100 Ω



(1) Conditions of reference: 23 °C ± 3 °K, 20 °C to 75 % RH, sinusoidal signal with frequency of 48 Hz at 10 kHz, distortion factor < 1 % with no DC component, external DC magnetic field < 40 A/m, no external AC magnetic field, no external conductor with circulating current, conductor centred for measurement, measurement instrument load impedance ≤ 10 Ω.

(2) With clamp closed.

(3) Vibrations expressed in mm peak, scanning of 1 octave/minute for 10 minutes on 3 axes.

To order	Reference
AC current clamp model <b>MINI 02</b> with operating manual	P01105102Z

# Current clamp for AC current

## Model MINI 03

MINI series

Calibre	100 AAC
Sensitivity	1 mV/A

### Description

Small and compact, the MINI 03 current clamp is the ideal complement for any multimeter to measure AC currents in low-power tertiary or industrial applications. When used with an AC voltmeter, it allows you to directly read the current measured on the voltmeter.



### Main specifications <sup>(1)</sup>

Calibre	100 A
Measurement range	1 A...100 A
Accuracy of primary current in %	≤ 2 % + 50 mA
Phase shift	not specified
Output signal	1 mVAC/AAC (100 mV for 100 A)

#### Output:

Double-insulated cable 1.5 m long, terminated by 2 insulated elbowed male banana connectors Ø 4 mm

#### Bandwidth:

48 Hz...500 Hz

#### Clamping capacity:

Cable Ø max 10 mm

### Electrical specifications

#### Maximum currents:

I < 150 A permanent from 48 Hz...500 Hz

#### Influence of temperature:

≤ 0.2 % per 10 °K

#### Influence of adjacent conductor:

≤ 2 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % at 50/60 Hz

#### Influence of frequency:

≤ 1 % from 65 Hz to 500 Hz

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +80 °C

#### Relative humidity for operation:

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

#### Operating altitude:

0 to 2,000 m

#### Casing protection rating (leakproofing):

IP40 <sup>(2)</sup> (EN 60529 Ed. 1992)

#### Drop test:

1.5 m (IEC 68-2-32)

#### Shock resistance:

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

#### Vibration resistance <sup>(3)</sup>:

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 UL94 V2

#### Dimensions:

130 x 37 x 25 mm

#### Weight:

Approx. 180 g

#### Colour:

Black casing

### 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 EN 61010-1 Ed. 2:2001, EN 61010-2-031 Ed. 2002 & EN 61010-2-032 Ed. 2003

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility:

CE-certified equipment compliant with standard EN 61326-1 (Ed. 97) + A1 (Ed. 98) + A2 (Ed. 01)

- Emission: stipulations for class B equipment (domestic use).

- Immunity: stipulations for equipment used intermittently on industrial sites.

(1) Conditions of reference: 23 °C ± 3 °K, 20 °C to 75 % RH, sinusoidal signal with frequency of 48 Hz to 65 Hz, distortion factor < 1 % with no DC component, external DC magnetic field < 40 A/m, no external AC magnetic field, no external conductor with circulating current, conductor centred for measurement, measurement instrument load impedance ≥ 10 kΩ.

(2) With clamp closed.

(3) Vibrations expressed in mm peak, scanning of 1 octave/minute for 10 minutes on 3 axes.

To order	Reference
AC current clamp model MINI 03 with operating manual	P01105103Z

# Current clamp for AC current

## Model MINI 05

MINI series

Calibre	10 A AC	100 A AC
Sensitivity	1 mV/mA	1 mV/A

### Description

Small and compact, the MINI 05 current clamp is the ideal complement for any multimeter to measure AC currents in low-power tertiary or industrial applications. With its 2 calibres, it offers excellent resolution for measuring AC currents from 5 mA to 100 A.



### Main specifications <sup>(1)</sup>

Calibre	10 A	100 A
Measurement range	5 mA...10 A	1 A...100 A
Accuracy of primary current in %	≤ 3 % + 0.15 mA	≤ 2 % + 50 mA
Phase shift	not specified	
Output signal	1 mVAC/mAAC (10 V for 10 A)	1 mVAC/AAC (100 mV for 100 A)

#### Output:

Double-insulated cable 1.5 m long, terminated by 2 insulated elbowed male banana connectors Ø 4 mm

#### Bandwidth:

48 Hz...500 Hz

#### Clamping capacity:

Cable Ø max 10 mm

### Electrical specifications

#### Maximum currents:

■ 100 A calibre

I < 150 A permanent from 48 Hz...500 Hz

■ 10 A calibre

I < 15 A permanent from 48 Hz...500 Hz

#### Influence of temperature:

≤ 0.2 % per 10 °K

#### Influence of adjacent conductor:

≤ 2 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % at 50/60 Hz

#### Influence of frequency:

■ 100 A calibre:

≤ 1 % from 65 Hz to 500 Hz

■ 10 A calibre:

≤ 3 % from 65 Hz to 500 Hz

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +80 °C

#### Relative humidity for operation:

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

#### Operating altitude:

0 to 2,000 m

#### Casing protection rating (leakproofing):

IP40 <sup>(2)</sup> (EN 60529 Ed. 1992)

#### Drop test:

1.5 m (IEC 68-2-32)

#### Shock resistance:

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

#### Vibration resistance <sup>(3)</sup>:

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 UL94 V2

#### Dimensions:

130 x 37 x 25 mm

#### Weight:

Approx. 180 g

#### Colour:

Black casing

### 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 EN 61010-1 Ed. 2:2001, EN 61010-2-031 Ed. 2002 & EN 61010-2-032 Ed. 2003

- 600 V category III, pollution degree 2

- 300 V category IV, pollution degree 2

#### Electromagnetic compatibility:

CE-certified equipment compliant with standard EN 61326-1 (Ed. 97) + A1 (Ed. 98) + A2 (Ed. 01)

- Emission: stipulations for class B equipment (domestic use).

- Immunity: stipulations for equipment used intermittently on industrial sites.

(1) Conditions of reference: 23 °C ± 3 °K, 20 °C to 75 % RH, sinusoidal signal with frequency of 48 Hz to 65 Hz, distortion factor < 1 % with no DC component, external DC magnetic field < 40 A/m, no external AC magnetic field, no external conductor with circulating current, conductor centred for measurement, measurement instrument load impedance ≥ 1 MΩ (10 A calibre) & ≥ 10 kΩ (100 A calibre).

(2) With clamp closed.

(3) Vibrations expressed in mm peak, scanning of 1 octave/minute for 10 minutes on 3 axes.

To order	Reference
AC current clamp model MINI 05 with operating manual	P01105105Z



# Current clamp for AC current

## Model MINI 09

Calibre	150 AAC
Sensitivity	100 mVDC / A AC

### Description

Small and compact, the MINI 09 current clamp is the ideal complement for any multimeter to measure AC currents in low-power tertiary or industrial applications. Its DC voltage output helps to overcome the low sensitivity of certain AC measurement instruments.

### Main specifications <sup>(1)</sup>

Calibre	150 A			
Measurement range	1 A...5 A	5 A...15 A	15 A...40 A	40 A...150 A
Accuracy of primary current in %	≤ 10 % + 0.2 A	≤ 6 % + 0.2 A	≤ 3 % + 0.2 A	≤ 4 %
Phase shift	not specified			
Output signal	100 mVDC / AAC (15 VDC for 150 A)			

#### Output:

Double-insulated cable 1.5 m long, terminated by 2 insulated elbowed male banana connectors Ø 4 mm

#### Bandwidth:

48 Hz...500 Hz

#### Clamping capacity:

Cable Ø max 10 mm

### Electrical specifications

#### Maximum currents:

I < 150 A permanent from 65 Hz...500 Hz

#### Influence of temperature:

≤ 0.2 % per 10 °K

#### Influence of adjacent conductor:

≤ 2 mA/A at 50 Hz

#### Influence of conductor position in jaws:

≤ 0.1 % at 50/60 Hz

#### Influence of frequency:

≤ 3 % from 65 Hz to 500 Hz

### Mechanical specifications

#### Operating temperature:

-10 °C to +50 °C

#### Storage temperature:

-40 °C to +80 °C

#### Relative humidity for operation:

0 to 85 % RH decreasing linearly above 35 °C

#### Operating altitude:

0 to 2,000 m

#### Casing protection rating (leakproofing):

IP40 <sup>(2)</sup> (EN 60529 Ed. 1992)

#### Drop test:

1.5 m (IEC 68-2-32)

#### Shock resistance:

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

#### Vibration resistance <sup>(3)</sup>:

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 UL94 V2

#### Dimensions:

130 x 37 x 25 mm

#### Weight:

Approx. 180 g

#### Colour:

Black casing

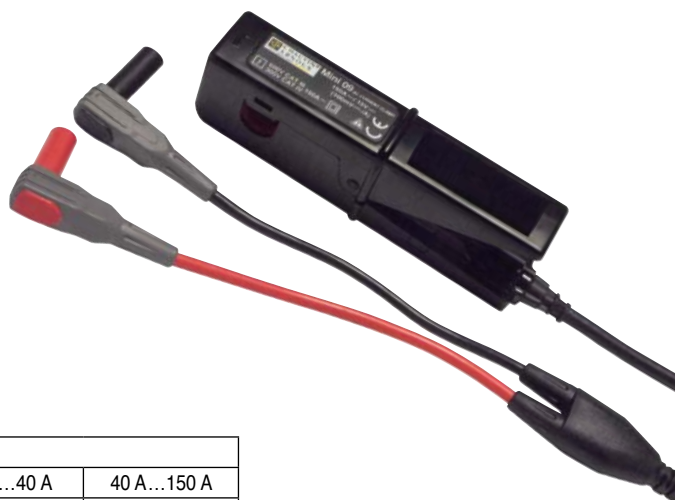
### Safety specifications

#### Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per EN 61010-1 Ed. 2:2001, EN 61010-2-031 Ed. 2002 & EN 61010-2-032 Ed. 2003  
 - 600 V category III, pollution degree 2  
 - 300 V category IV, pollution degree 2

#### Electromagnetic compatibility:

CE-certified equipment compliant with standard EN 61326-1 (Ed. 97) + A1 (Ed. 98) + A2 (Ed. 01)  
 - Emission: stipulations for class B equipment (domestic use).  
 - Immunity: stipulations for equipment used intermittently on industrial sites.



(1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sinusoidal signal with frequency of 48 Hz to 65 Hz, distortion factor < 1 % with no DC component, external DC magnetic field < 40 A/m, no external AC magnetic field, no external conductor with circulating current, conductor centred for measurement, measurement instrument load impedance ≥ 50 kΩ.

(2) With clamp closed.

(3) Vibrations expressed in mm peak, scanning of 1 octave/minute for 10 minutes on 3 axes.

To order	Reference
AC current clamp model MINI 09 with operating manual	P01105109Z