Clamp-on ammeter for AC current

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.
Clamp-on ammeter for AC current

MINI 01 model

Calibre | 150 A AC
Sensitivity | 1 mA/A (1,000/1)

■ Description
Small and compact, the MINI 01 clamp-on ammeter 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 (1)

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 decreasing linearly above 35 °C
- Operating altitude: 0 to 2,000 m
- Casing protection rating (leakproofing):
  - IP40 (2) (EN 60529 Ed. 1995)
- Fall height:
  - 1.5 m (IEC 68-2-32)
- Shock protection:
  - 100 g / 6 ms / half-period (IEC 68-2-27)
- Vibration resistance (3):
  - 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
- Colours: 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 500 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
MINI 01 clamp-on AC ammeter with operating manual
Reference
P01105101Z
Clamp-on ammeter for AC current

MINI 03 model

### Electrical specifications

- **Calibre:** 100 A
- **Sensitivity:** 1 mV/A

- **Description**
  Small and compact, the MINI 03 clamp-on ammeter 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**

<table>
<thead>
<tr>
<th>Calibre</th>
<th>100 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement range</td>
<td>1 A ... 100 A</td>
</tr>
<tr>
<td>Accuracy in %</td>
<td>≤ 2.5 % + 50 mA</td>
</tr>
<tr>
<td>Phase shift</td>
<td>Not specified</td>
</tr>
<tr>
<td>Output signal</td>
<td>1 mA AC/AAC (100 mA at 10 A)</td>
</tr>
</tbody>
</table>

- **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

### 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 (2) (EN 60529 Ed.1995)

- **Fall height:**
  1.5 m (IEC 68-2-32)

- **Shock protection:**
  100 g / 6 ms / half-period (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 UL94 V2

### 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 EN61326-1 (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.

### Specifications

- **Calibre**
  - 100 A

- **Sensitivity**
  - 1 mV/A

### To order

<table>
<thead>
<tr>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINI 03 clamp-on AC ammeter with operating manual</td>
</tr>
<tr>
<td>P01105103Z</td>
</tr>
</tbody>
</table>

(1) Conditions of reference: 23 °C ± 3 °K, 20 to 75 % RH, sinusoidal signal with frequency of 48 Hz to 500 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.
Clamp-on ammeter for AC current

MINI 05 model

<table>
<thead>
<tr>
<th>Calibres</th>
<th>10 A AC</th>
<th>100 A AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivities</td>
<td>1 mV/mA</td>
<td>1 mV/A</td>
</tr>
</tbody>
</table>

■ Description
Small and compact, the MINI 05 clamp-on ammeter 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 intensities from 5 mA to 100 A.

■ Main specifications (1)

<table>
<thead>
<tr>
<th>Calibre</th>
<th>10 A</th>
<th>100 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement range</td>
<td>5 mA…10 A</td>
<td>1 A…100 A</td>
</tr>
<tr>
<td>Accuracy in %</td>
<td>≤ 3 % + 0.15 mA</td>
<td>≤ 2 % + 50 mA</td>
</tr>
<tr>
<td>Phase shift</td>
<td>Not specified</td>
<td></td>
</tr>
<tr>
<td>Output signal</td>
<td>1 mV AC/mA AC (10 V at 10 A)</td>
<td>1 mV AC/AC (100 mV at 100 A)</td>
</tr>
</tbody>
</table>

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:
0 to 85% RH decreasing linearly above 35°C

Operating altitude:
0 to 2,000 m

Casing protection rating (leakproofing):
IP40 (2) (EN 60529 Ed.1995)

Fall height:
1.5 m (IEC 68-2-32)

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

Vibration resistance (3):
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

Colours: 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 EN61326-1 (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 500 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
MINI 05 clamp-on AC ammeter with operating manual
Reference
P01105105Z
Clamp-on ammeter for AC current
MINI 09 model

■ Description
Small and compact, the MINI 09 clamp-on ammeter 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 (1)

<table>
<thead>
<tr>
<th>Calibre</th>
<th>150 A</th>
<th>Measurement range:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 A...5 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 A...15 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 A...40 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40 A...150 A</td>
</tr>
<tr>
<td>Accuracy in %</td>
<td></td>
<td>≤ 10 % + 0.2 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≤ 6 % + 0.2 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≤ 3 % + 0.2 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≤ 4 %</td>
</tr>
<tr>
<td>Phase shift</td>
<td></td>
<td>Not specified</td>
</tr>
<tr>
<td>Output signal</td>
<td></td>
<td>100 mV dc / AAC (15 V dc at 150 A)</td>
</tr>
</tbody>
</table>

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 (2) (EN 60529 Ed.1995)
Fall height: 1.5 m (IEC 68-2-32)
Shock protection:
100 g / 6 ms / half-period (IEC 68-2-27)
Vibration resistance R2,
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
Colours: 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
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(2) With clamp closed.
(3) Vibrations expressed in mm peak, scanning of 1 octave/minute for 10 minutes on 3 axes.

To order
MINI 09 clamp-on AC ammeter with operating manual
Reference
P01105109Z