# CURRENT CLAMPS FOR AC/DC CURRENT







## PAC series

PAC clamps are professional current clamps designed to measure both AC and DC currents. The two jaw shapes available allow the user to clamp onto leads as well as small busbars.

Using the Hall effect principle, models in the PAC 10 series measure up to 400 A AC and 600 A DC, whilst those in the PAC 20 series reach 1,000 A AC and 1,400 A DC.

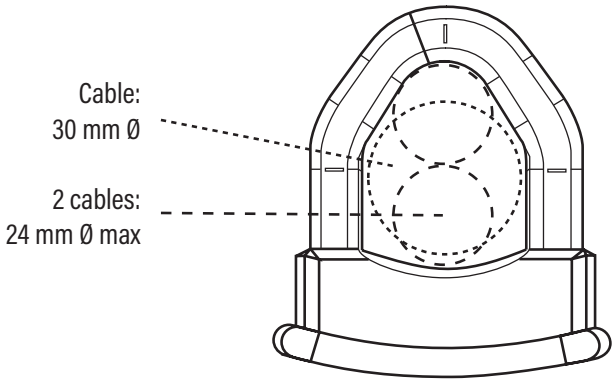
Powered by a battery or an optional standard external power supply via their micro USB connector, the PAC clamps all feature automatic DC zero adjustment and an automatic standby mode (Auto Power Off (APO)) that is disengageable.

The PAC 15 and PAC 25 models have a single measurement range with a sensitivity of 1 mV/A, allowing a so-called "direct" reading on the associated multimeter.

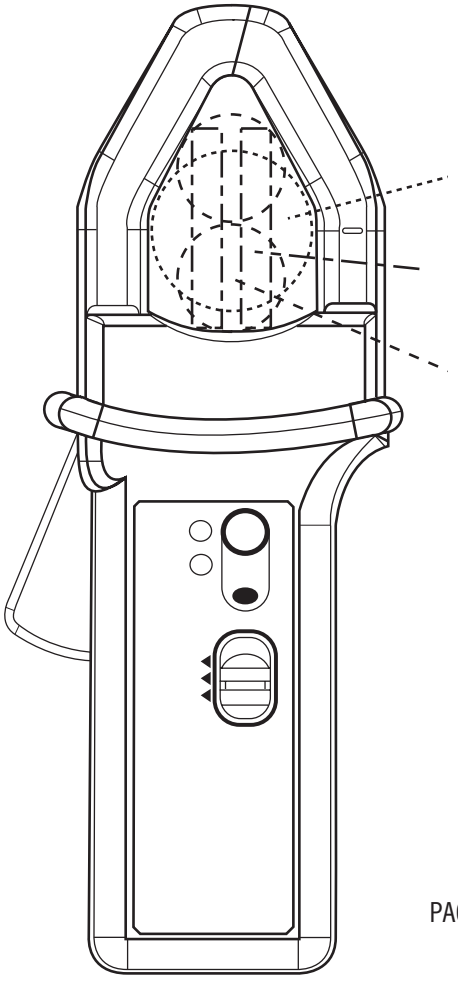
The PAC 16 and PAC 26 models feature a second, more sensitive 10 mV/A calibre.

The PAC 17 and PAC 27 models, also known as "isolated current probes", are dual-range and equipped with a coaxial lead and an isolated BNC connector so that they can be connected directly to an oscilloscope, allowing the current to be displayed in terms of both waveform and amplitude.

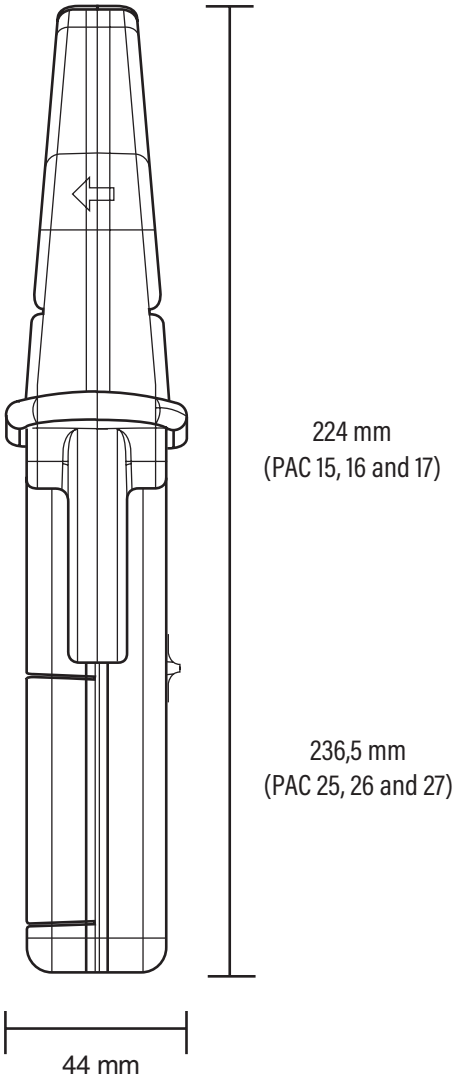
# CURRENT CLAMPS FOR AC/DC CURRENT




Jaws
PAC15, 16 and 17




PAC 25, 26 and 27



# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC15

| | |
|---|---|
| **Current** | 400 A AC<br>600 A DC |
| **Output** | 1 mV/A |




## Description

The PAC15 model provides accurate measurement of AC or DC currents using the Hall effect principle. This mV-output clamp meter is equipped with an automatic DC zero system and a disengageable Auto Power Off (APO) function, and can be powered by a standard mains adapter via a Micro USB connector.

## Electrical specifications

- **Current range:**
  0.5 A AC .. 400 A AC (600 A peak) / 0.5 A DC .. 600 A DC
- **Output signal:**
  1 mV AC+DC / A AC+DC (0.6 V for 600 A)
- **Accuracy and phase shift** [1]**:**

| Primary current: | 0.5 A .. 3 A | 3 A .. 100 A | 100 A .. 300 A | 300 A .. 400 A | 400 A .. 500 A (DC only) | 500 A .. 600 A (DC only) |
|---|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 2 % + 1.5 mV | ≤ 2 % + 1.5 mV | ≤ 2 % | ≤ 2 % | ≤ 3 % | ≤ 4 % |
| Phase shift [2] | Not specified | ≤ 2.2 ° | ≤ 2.2 ° | ≤ 1.5 ° | - | - |

- **Bandwidth:**
  DC .. 30 kHz at -3 dB (depending on current value)
- **Insertion impedance:**
  0.01 mΩ at 400 Hz, 0.12 mΩ at 1 kHz
- **Maximum currents:**
  3,000 A DC or 1,000 A AC continuous for a frequency < 1 kHz (limitation proportional to the inverse of one third of frequency beyond)
- **DC zero adjustment:**
  Automatic, in increments of 40 to 60 mA
- **AC output noise:**
  ≤ 1 mV peak-to-peak
- **Power supply:**
  9 V alkaline (NEDA 1604A, IEC 6LR61)
  5 V DC Micro USB type B
- **Battery life:**
  50 hours typical
- **Consumption:**
  Typical 10 mA (battery)
  Typical 31 mA (5 V µUSB)
- **"ON" LED indicator:**
  "On" = In operation & battery level OK
  "Flashing" = Battery life < 4 hours
  "Colour = green" = APO ON
  "Colour = yellow" = APO OFF
- **"OL" LED indicator:**
  Overload indication; current measured is too high for the calibre being used
- **Effect of the power supply voltage:**
  Null
- **Influence of temperature:**
  ≤ 3 % of the measurement + 100 mA DC/°C
- **Influence of relative humidity:**
  ≤ 0.5% at 10% to 85% RH at ambient temperature
- **Influence of an adjacent conductor carrying a 50 Hz AC current, situated 23 mm from the clamp:**
  < 10 mA/A
- **Influence of an external field 400 A/m @ 50 Hz:**
  < 1.3 A
- **Influence of conductor position Ø 20 mm in jaws:**
  ≤ 1 %
- **Influence of frequency** [3]**:**
  from 10 Hz .. 400 Hz: ≤ 1 % of Vs
  from 400 Hz .. 10 kHz: ≤ 3.5 % of Vs
  from 10 kHz .. 30 kHz: see curve
- **Common mode rejection:**
  > 90 dB A/V @ 50 Hz
- **Remanence:**
  0 to 50 A DC: 1.2 A typical
  0 to 100 A DC: 2.3 A typical
  0 to 200 A DC: 3.4 A typical
  0 to 400 A DC: 4.8 A typical
  0 to 600 A DC: 5.5 A typical
  0 to 800 A DC: 5.8 A typical

## Mechanical specifications

- **Max. jaw opening:**
  31 mm
- **Clamping capacity:**
  Cables: Ø 30 mm
  Ø 24 mm x 2
  Busbars: 1 busbar 50 x 10 mm
  2 busbars 31.5 x 10 mm
  3 busbars 25 x 8 mm
  4 busbars 25 x 5 mm
- **Output:**
  1.5 m double-insulated lead with safety male plugs (4 mm)
- **Dimensions:**
  224 x 97 x 44 mm
- **Mass:**
  440 g with battery
- **Operating temperature:**
  -10°C to +55°C
- **Storage temperature:**
  -40°C to +80°C
- **Max. temperature of clamped conductor (measured):**
  +90 °C (+110 °C at peak)
- **Max. jaw temperature:**
  +80 °C
- **Relative humidity for operation:**
  0 to 85 % RH with a linear decrease above 35 °C
- **Operating altitude:**
  0 to 2,000 m
- **Casing protection rating:**
  IP 40 (IEC 60529)
- **Drop test:**
  1 m (IEC 60068-2-32)
- **Self-extinguishing capability:**
  UL94 V1
- **Colours:**
  Dark grey case with red jaws

# CURRENT CLAMPS FOR AC/DC CURRENT

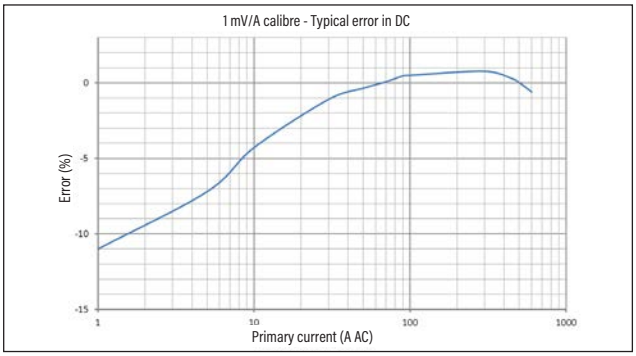
## Model PAC15

## Safety specifications

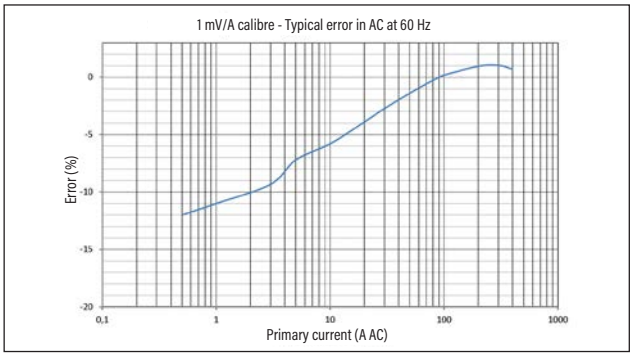
- **Electrical safety:**
  Type A instrument, with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per CEI 61010-1 & CEI 61010-2-032
  - 600 V category III, pollution degree 2
  - 300 V category IV, pollution degree 2
- **Electromagnetic compatibility (EMC):**
  Compliant with IEC 61326-1
  (portable instrument)

## Curves

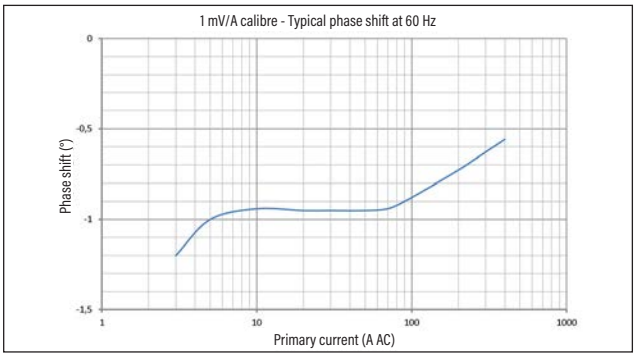
Linearity with DC



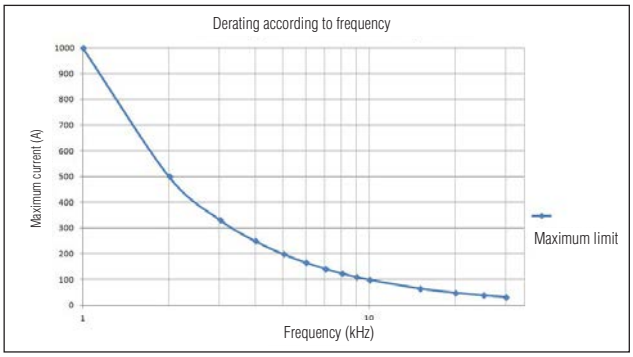

Linearity with AC



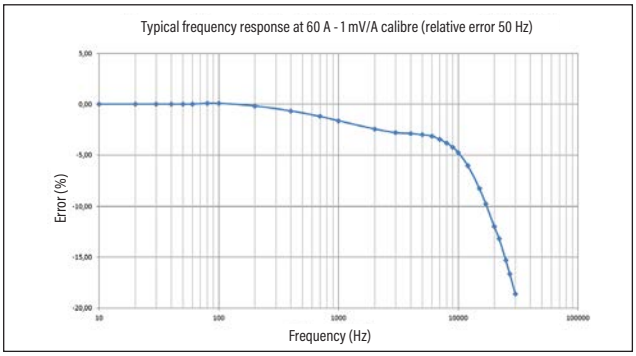

Phase shift



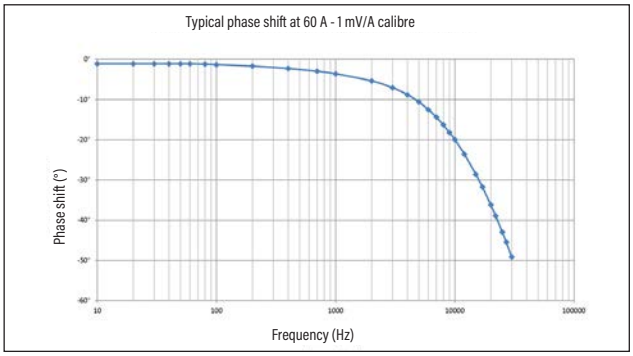

Limitation of measurable current according to frequency




Frequency response




Frequency phase shift




(1) Conditions of reference:
Temperature & humidity: 23 °C ± 5 °K, 20% to 75% RH
Power supply: via a battery between 6 V and 9 V, via µUSB 5 ± 0.1 VDC
Position of the conductor centred on the clamp markings
Magnetic field: continuous Earth's magnetic field.
No external alternating magnetic field.
No electric field.
Measurement for a sinusoidal DC current at 65 Hz.
Instrument impedance: > 1 MΩ ≤ 100 pF.

(2) Phase shift in "absolute value" (unsigned)

(3) Out of reference domain

| To order | Reference |
|---|---|
| AC/DC current clamps, model **PAC15**, with battery and user manual | P01120115 |

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC16

| | | |
|---|---|---|
| **Current** | 40 A AC<br>60 A DC | 400 A AC<br>600 A DC |
| **Output** | 10 mV/A | 1 mV/A |




## Description

The PAC16 model provides accurate measurement of AC or DC currents using the Hall effect principle. This mV-output clamp meter is equipped with an automatic DC zero system and a disengageable Auto Power Off (APO) function, and can be powered by a standard mains adapter via a Micro USB connector.

## Electrical specifications

- **Current range:**
  0.2 A AC .. 40 A AC (60 A peak) / 0.4 A DC .. 60 A DC
  0.5 A AC .. 400 A AC (600 A peak) / 0.5 A DC .. 600 A DC
- **Output signal:**
  10 mV AC+ DC / A AC+ DC (0.6 V at 60 A)
  1 mV AC+ DC / A AC+ DC (0.6 V at 600 A)
- **Accuracy and phase shift** [1]**:**
- 60 A calibre

| Primary current: | 0.5 A .. 1 A | 1 A .. 20 A | 20 A .. 30 A | 30 A .. 40 A | 40 A .. 60 A (DC only) |
|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 3 % + 8 mV | ≤ 3 % + 8 mV | ≤ 3 % + 8 mV | ≤ 1.5 % | ≤ 1.5 % |
| Phase shift [2] | Not specified | ≤ 3° | ≤ 2.2° | ≤ 2.2° | - |

- 600 A calibre

| Primary current: | 0.5 A .. 3 A | 3 A .. 100 A | 100 A .. 300 A | 300 A .. 400 A | 400 A .. 500 A (DC only) | 500 A .. 600 A (DC only) |
|---|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 2 % + 1.5 mV | ≤ 2 % + 1.5 mV | ≤ 2 % | ≤ 2 % | ≤ 3 % | ≤ 4 % |
| Phase shift [3] | Not specified | ≤ 2.2° | ≤ 2.2° | ≤ 1.5° | - | - |

- **Bandwidth:**
  DC .. 30 kHz at -3 dB (depending on current value)
- **Insertion impedance:**
  0.01 mΩ at 400 Hz, 0.12 mΩ at 1 kHz
- **Maximum currents:**
  3,000 A DC or 1,000 A AC continuous for a frequency < 1 kHz (limitation proportional to the inverse of one third of frequency beyond)
- **DC zero adjustment:**
  Automatic, in increments of 40 to 60 mA
- **AC output noise:**
- 60 A calibre: ≤ 3 mV or 0.3 A peak-peak
- 600 A calibre: ≤ 1 mV or 1 A peak-peak
- **Power supply:**
  9 V alkaline (NEDA 1604A, IEC 6LR61)
  5 V DC Micro USB type B
- **Battery life:**
  50 hours typical
- **Consumption:**
  Typical 10 mA (battery)
  Typical 31 mA (5 V µUSB)
- **"ON" LED indicator:**
  "On" = In operation & battery level OK
  "Flashing" = Battery life < 4 hours
  "Colour = green" = APO ON
  "Colour = yellow" = APO OFF
- **"OL" LED indicator:**
  Overload indication; current measured is too high for the calibre being used
- **Effect of the power supply voltage:**
  Null
- **Influence of temperature:**
  ≤ 3 % of the measurement + 100 mA DC/°C
- **Influence of relative humidity:**
  ≤ 0.5% at 10% to 85% RH at ambient temperature
- **Influence of an adjacent conductor carrying a 50 Hz AC current, situated 23 mm from the clamp:**
  < 10 mA/A
- **Influence of an external field 400 A/m @ 50 Hz:**
  < 1.3 A
- **Influence of conductor position Ø 20 mm in jaws:**
  ≤ 1 %
- **Influence of frequency** [4]**:**
- Calibre 60 A:
  from 10 Hz .. 400 Hz: ≤ 1 % of Vs
  from 400 Hz .. 7 kHz: ≤ 3.5 % of Vs
  from 7 kHz .. 30 kHz: see curve
- Calibre 600 A:
  from 10 Hz .. 400 Hz: ≤ 1 % of Vs
  from 400 Hz .. 10 kHz: ≤ 3.5 % of Vs
  from 10 kHz .. 30 kHz: see curve
- **Common mode rejection:**
  > 90 dB A/V @ 50 Hz
- **Remanence:**
  0 to 50 A DC: 1.2 A typical
  0 to 100 A DC: 2.3 A typical
  0 to 200 A DC: 3.4 A typical
  0 to 400 A DC: 4.8 A typical
  0 to 600 A DC: 5.5 A typical
  0 to 800 A DC: 5.8 A typical

## Mechanical specifications

- **Max. jaw opening:**
  31 mm
- **Clamping capacity:**
  Cables: Ø 30 mm
  Ø 24 mm x 2
  Busbars: 1 busbar 50 x 10 mm
  2 busbars 31.5 x 10 mm
  3 busbars 25 x 8 mm
  4 busbars 25 x 5 mm
- **Output:**
  1.5 m double-insulated lead with safety male plugs (4 mm)
- **Dimensions:**
  224 x 97 x 44 mm
- **Mass:**
  440 g with battery
- **Operating temperature:**
  -10°C to +55°C
- **Storage temperature:**
  -40°C to +80°C

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC16

- **Max. temperature of clamped conductor (measured):**
  +90 °C (+110 °C at peak)
- **Max. jaw temperature:**
  +80 °C
- **Relative humidity for operation:**
  0 to 85 % RH with a linear decrease above 35 °C
- **Operating altitude:**
  0 to 2,000 m
- **Casing protection rating:**
  IP 40 (IEC 60529)
- **Drop test:**
  1 m (IEC 60068-2-32)
- **Self-extinguishing capability:**
  UL94 V1
- **Colours:**
  Dark grey case with red jaws

### Safety specifications

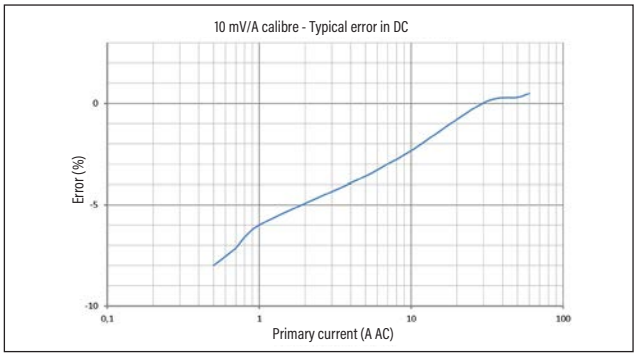
- **Electrical safety:**
  Type A instrument, with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per CEI 61010-1 & CEI 61010-2-032
  - 600 V category III, pollution degree 2
  - 300 V category IV, pollution degree 2
- **Electromagnetic compatibility (EMC): :**
  Compliant with IEC 61326-1 (portable instrument)

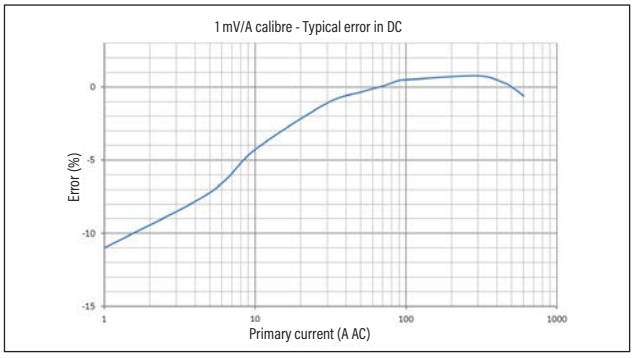
### Curves

60 A calibre

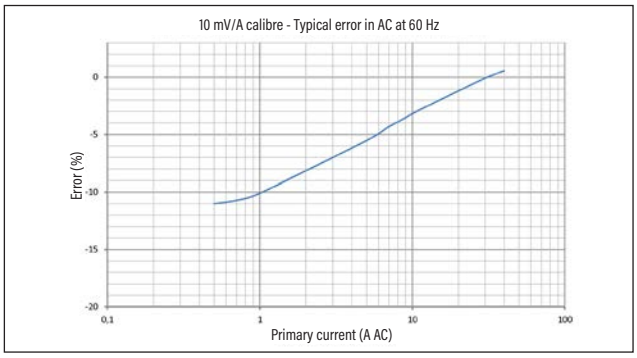
600 A calibre

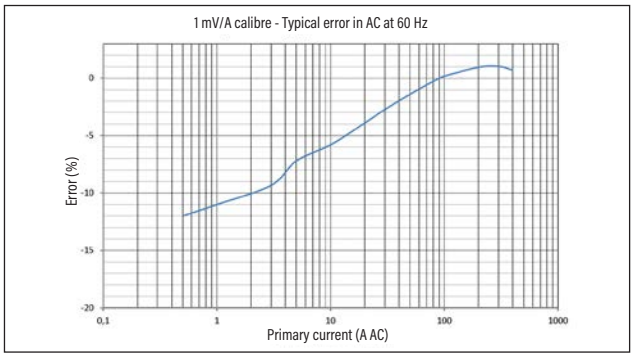
Linearity with DC



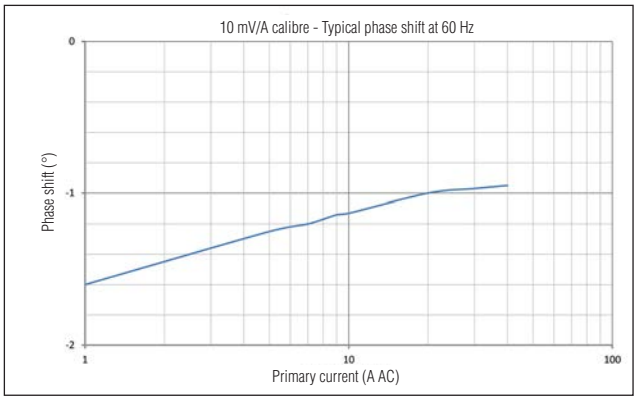



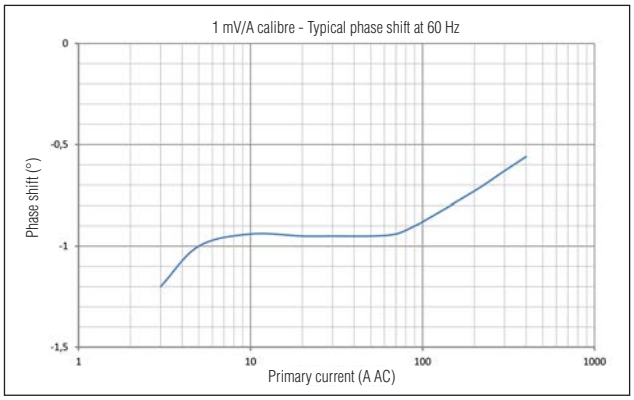

Linearity with AC




Phase shift



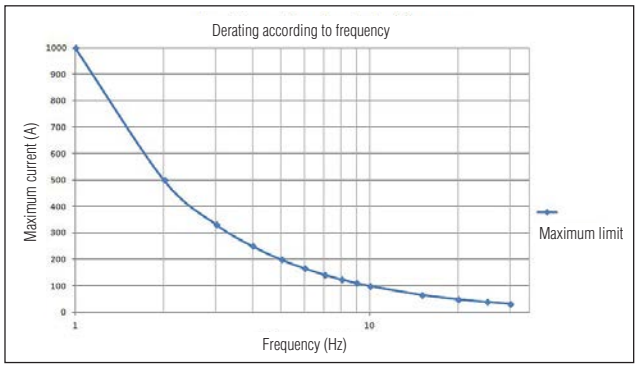



# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC16

## Curves

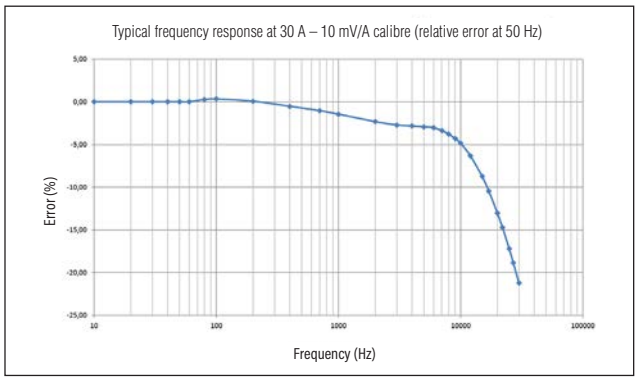
Limitation of the measurable current as a function of frequency

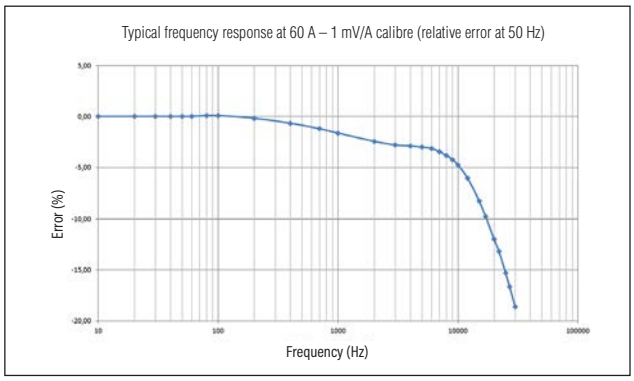



### 60 A calibre

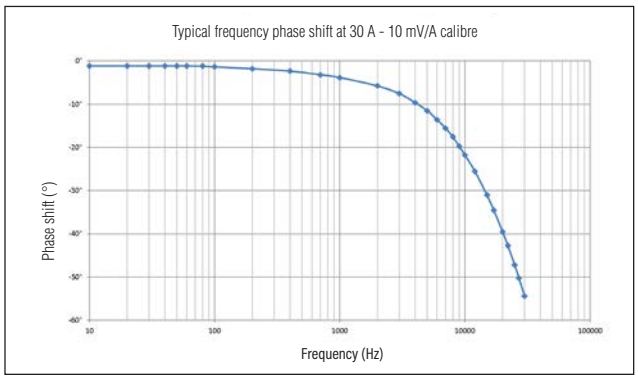
### 600 A calibre

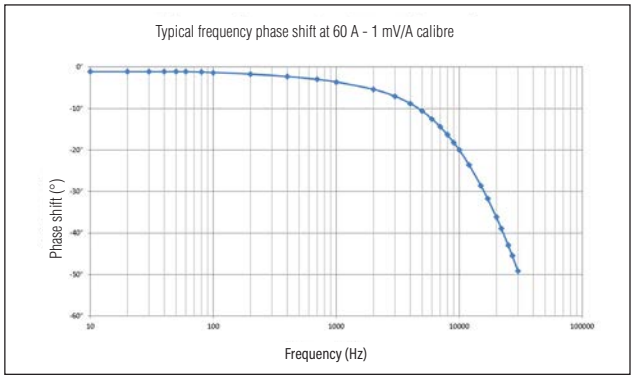
Frequency response




Frequency phase shift




(1) Conditions of reference:
Temperature & humidity: 23 °C ± 5 °K, 20% to 75% RH
Power supply: via a battery between 6 V and 9 V, via µUSB 5 ± 0.1 VDC
Position of the conductor centred on the clamp markings
Magnetic field: continuous Earth's magnetic field.
No external alternating magnetic field.
No electric field.
Measurement for a sinusoidal DC current at 65 Hz.
Instrument impedance: > 1 MΩ ≤ 100 pF.

(2) Phase shift in "absolute value"' (unsigned)

(3) Out of reference domain

| To order | Reference |
|---|---|
| AC/DC current clamps, model **PAC16**, with battery and user manual | P01120116 |

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC17 (insulated AC/DC current probe)

| | | |
|---|---|---|
| **Current** | 40 A AC<br>60 A DC | 400 A AC<br>600 A DC |
| **Output** | 10 mV/A | 1 mV/A |




## Description

The PAC17 model provides accurate measurement of AC or DC currents using the Hall effect principle. This mV-to-BNC output clamp (for direct reading on oscilloscopes, etc.) is equipped with an automatic DC zero system and a disengageable Auto Power Off (APO) function, and can be powered by a standard mains adapter via a Micro USB connector.

## Electrical specifications

- **Current range:**
  0.2 A AC .. 40 A AC (60 A peak) / 0.4 A DC .. 60 A DC
  0.5 A AC .. 400 A AC (600 A peak) / 0.5 A DC .. 600 A DC
- **Output signal:**
  10 mV AC+ DC / A AC+ DC (0.6 V at 60 A)
  1 mV AC+ DC / A AC+ DC (0.6 V at 600 A)
- **Accuracy and phase shift** [1]**:**
- 60 A calibre

| Primary current: | 0.5 A .. 1 A | 1 A .. 20 A | 20 A .. 30 A | 30 A .. 40 A | 40 A .. 60 A (DC only) |
|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 3 % + 8 mV | ≤ 3 % + 8 mV | ≤ 3 % + 8 mV | ≤ 1.5 % | ≤ 1.5 % |
| Phase shift [2] | Not specified | ≤ 3° | ≤ 2.2° | ≤ 2.2° | - |

- 600 A calibre

| Primary current: | 0.5 A .. 3 A | 3 A .. 100 A | 100 A .. 300 A | 300 A .. 400 A | 400 A .. 500 A (DC only) | 500 A .. 600 A (DC only) |
|---|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 2 % + 1.5 mV | ≤ 2 % + 1.5 mV | ≤ 2 % | ≤ 2 % | ≤ 3 % | ≤ 4 % |
| Phase shift [3] | Not specified | ≤ 2.2° | ≤ 2.2° | ≤ 1.5° | - | - |

- **Bandwidth:**
  DC .. 30 kHz at -3 dB (depending on current value)
- **Rise time (10% to 90% of Vs):**
  ≤ 11 µs
- **Fall time (from 90% to 10% of Vs):**
  ≤ 11 µs
- **10 % delay time:**
  ≤ 10 µs
- **Insertion impedance:**
  0.01 mΩ at 400 Hz, 2.8 mΩ at 10 kHz
- **Maximum currents:**
  3,000 A DC or 1,000 A AC continuous for a frequency < 1 kHz (limitation proportional to the inverse of one third of frequency beyond)
- **DC zero adjustment:**
- Calibre 60 A & 600 A:
  Automatic, in increments of 40 to 60 mA
- **AC output noise:**
- 60 A calibre: ≤ 3 mV or 0.3 A peak-peak
- 600 A calibre: ≤ 1 mV or 1 A peak-peak
- **Power supply:**
  9 V alkaline (NEDA 1604A, IEC 6LR61)
  5 V DC Micro USB type B
- **Battery life:**
  50 hours typical
- **Consumption:**
  Typical 10 mA (battery)
  Typical 31 mA (5 V µUSB)
- **"ON" LED indicator:**
  "On" = In operation & battery level OK
  "Flashing" = Battery life < 4 hours
  "Colour = green" = APO ON
  "Colour = yellow" = APO OFF
- **"OL" LED indicator:**
  Overload indication; current measured is too high for the calibre being used
- **Effect of the power supply voltage:**
  Null
- **Influence of temperature:**
  ≤ 3 % of the measurement + 100 mA DC/°C
- **Influence of relative humidity:**
  ≤ 0.5% at 10% to 85% RH at ambient temperature
- **Influence of an adjacent conductor carrying a 50 Hz AC current, situated 23 mm from the clamp:**
  < 10 mA/A
- **Influence of an external field 400 A/m @ 50 Hz:**
  < 1.3 A
- **Influence of conductor position Ø 20 mm in jaws:**
  ≤ 1 %
- **Influence of frequency** [2]**:**
- Calibre 60 A:
  from 10 Hz .. 400 Hz: ≤ 1 % of Vs
  from 400 Hz .. 7 kHz: ≤ 3.5 % of Vs
  from 7 kHz .. 30 kHz: see curve
- Calibre 600 A:
  from 10 Hz .. 400 Hz: ≤ 1 % of Vs
  from 400 Hz .. 10 kHz: ≤ 3.5 % of Vs
  from 10 kHz .. 30 kHz: see curve
- **Common mode rejection:**
  > 90 dB A/V @ 50 Hz
- **Remanence:**
  0 to 50 A DC: 1.2 A typical
  0 to 100 A DC: 2.3 A typical
  0 to 200 A DC: 3.4 A typical
  0 to 400 A DC: 4.8 A typical
  0 to 600 A DC: 5.5 A typical
  0 to 800 A DC: 5.8 A typical

## Mechanical specifications

- **Max. jaw opening:**
  31 mm
- **Clamping capacity:**
  Cables: Ø 30 mm
  Ø 24 mm x 2
  Busbars: 1 busbar 50 x 10 mm
  2 busbars 31.5 x 10 mm
  3 busbars 25 x 8 mm
  4 busbars 25 x 5 mm
- **Output:**
  Coaxial cable 2 m long, terminated by an insulated BNC connector
- **Dimensions:**
  224 x 97 x 44 mm
- **Mass:**
  440 g with battery
- **Operating temperature:**
  -10°C to +55°C

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC17 (insulated AC/DC current probe)

- **Storage temperature:**
  -40°C to +80°C
- **Max. temperature of clamped conductor (measured):**
  +90 °C (+110 °C at peak)
- **Max. jaw temperature:**
  +80 °C
- **Relative humidity for operation:**
  0 to 85 % RH with a linear decrease above 35 °C
- **Operating altitude:**
  0 to 2,000 m
- **Casing protection rating:**
  IP 40 (IEC 60529)
- **Drop test:**
  1 m (IEC 60068-2-32)
- **Self-extinguishing capability:**
  UL94 V1
- **Colours:**
  Dark grey case with red jaws

### Safety specifications

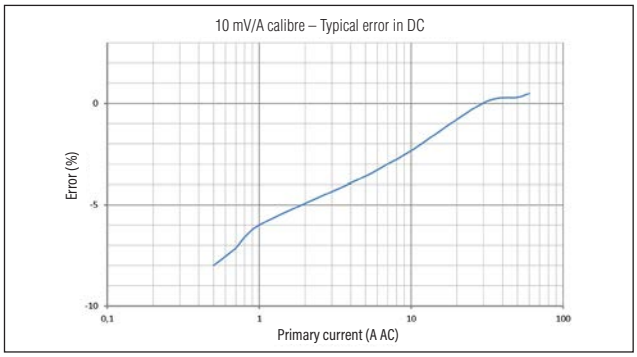
- **Electrical safety:**
  Type A instrument, with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per CEI 61010-1 & CEI 61010-2-032
  - 600 V category III, pollution degree 2
  - 300 V category IV, pollution degree 2
- **Electromagnetic compatibility (EMC): :**
  Compliant with IEC 61326-1 (portable instrument)

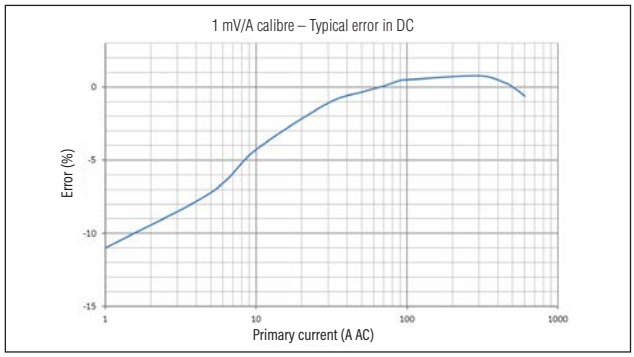
### Curves

60 A calibre

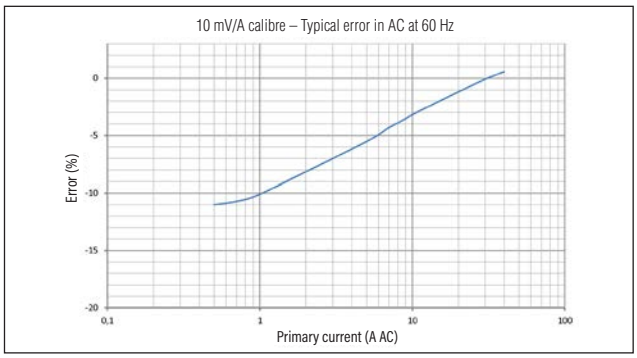
600 A calibre

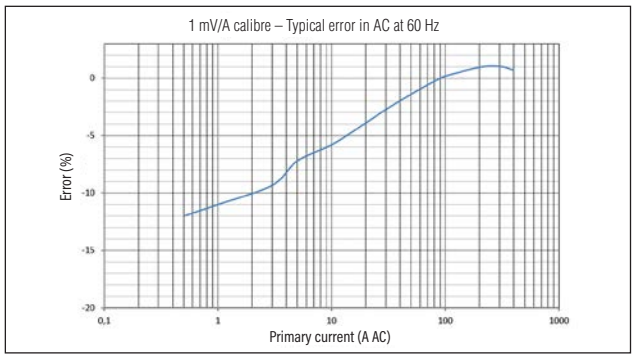
Linearity with DC



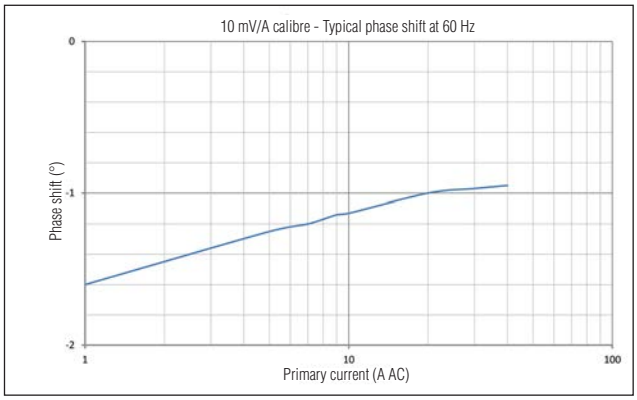



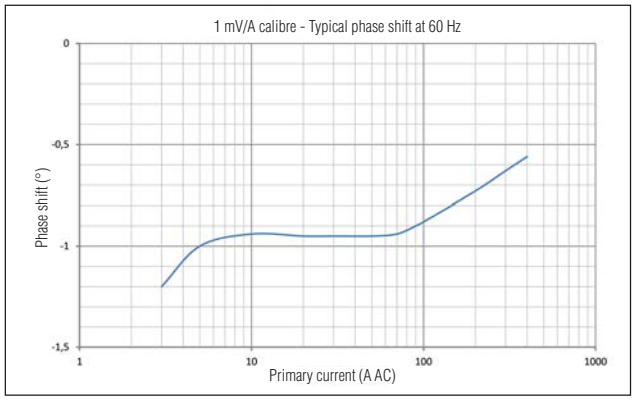

Linearity with AC




Phase shift



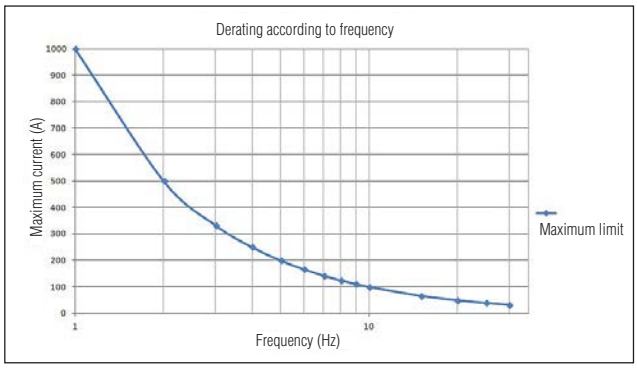



# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC17 (insulated AC/DC current probe)

### Curves

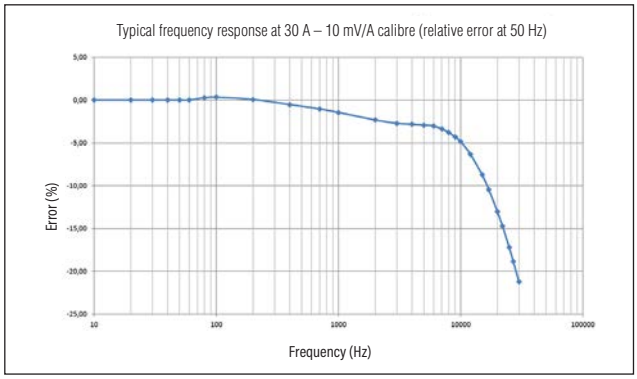
Limitation of the measurable current as a function of frequency

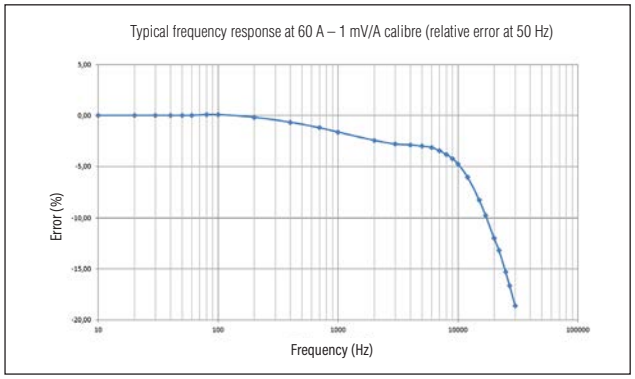



## 60 A calibre

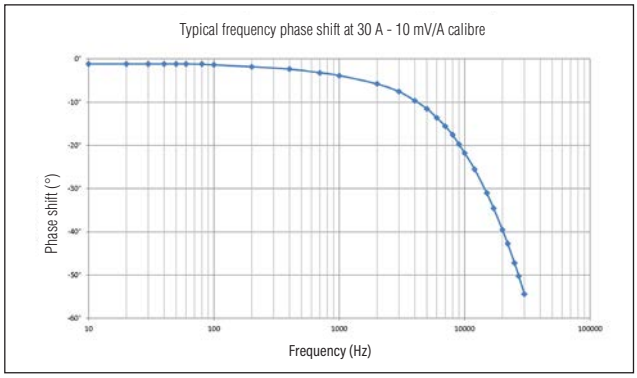
## 600 A calibre

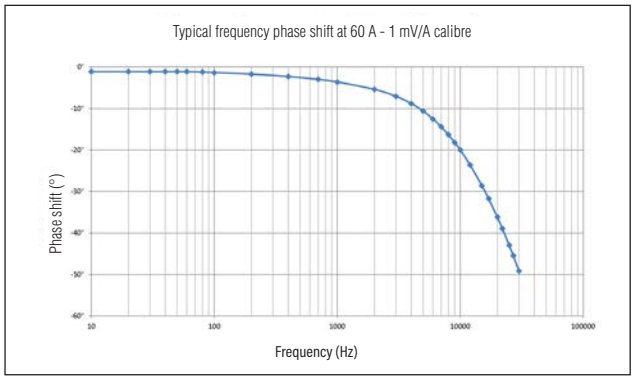
Frequency response




Frequency phase shift



# CURRENT CLAMPS FOR AC/DC CURRENT

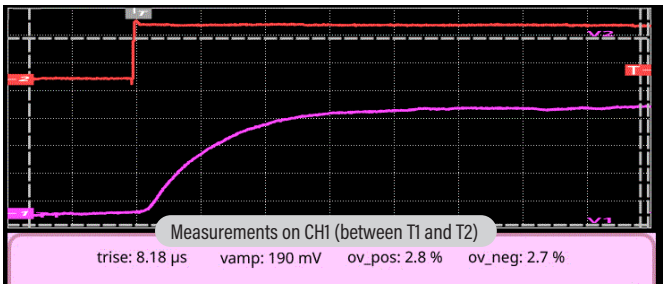
## Model PAC17 (insulated AC/DC current probe)

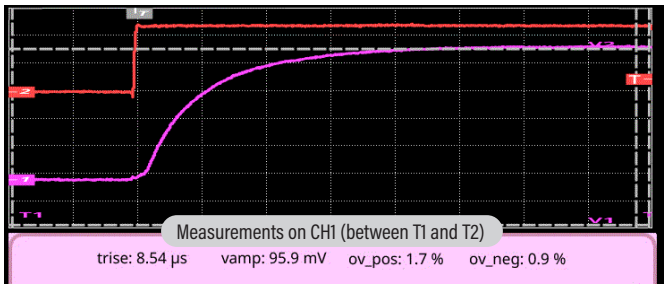
### Curves

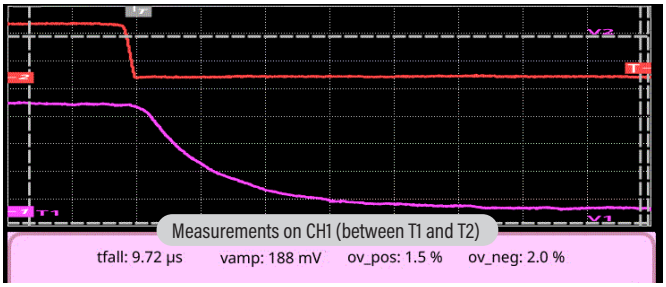
60 A calibre

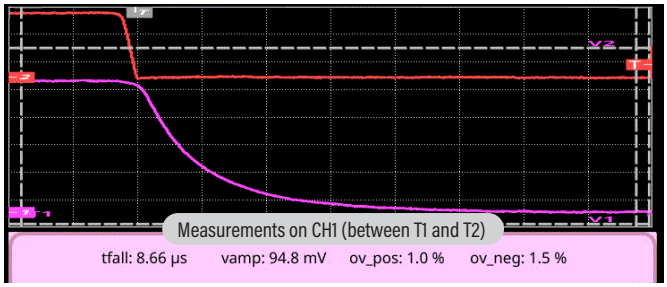
600 A calibre

Pulse response




(1) Conditions of reference:
Temperature & humidity: 23 °C ± 5 °K, 20% to 75% RH
Power supply: via a battery between 6 V and 9 V, via µUSB 5 ± 0.1 VDC
Position of the conductor centred on the clamp markings
Magnetic field: continuous Earth's magnetic field.
No external alternating magnetic field.
No electric field.
Measurement for a sinusoidal DC current at 65 Hz.
Instrument impedance: > 1 MΩ ≤ 100 pF.

(2) Out of reference domain

| To order | Reference |
|---|---|
| AC/DC current clamp, model **PAC17,** for oscilloscopes, with battery and operating user manual | P01120117 |

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC25

| | |
|---|---|
| **Current** | 1,000 A AC<br>1,400 A DC |
| **Output** | 1 mV/A |




## Description

The PAC25 model provides accurate measurement of AC or DC currents using the Hall effect principle. This mV-output clamp meter is equipped with an automatic DC zero system and a disengageable Auto Power Off (APO) function, and can be powered by a standard mains adapter via a Micro USB connector.

## Electrical specifications

- **Current range**
  0.5 A AC .. 1,000 A AC (1,400 A peak) / 0.5 A DC .. 1,400 A DC
- **Output signal:**
  1 mV AC+DC / A AC+DC (1.4 V for 1,400 A)
- **Accuracy and phase shift** (1):

| Primary current: | 0.5 A .. 3 A | 3 A .. 100 A | 100 A .. 200 A | 200 A .. 800 A | 800 A .. 1,000 A | 1,000 A .. 1,400 A (DC only) |
|---|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 2 % + 1.5 mV | ≤ 2 % + 1.5 mV | ≤ 2.5 % | ≤ 2.5 % | ≤ 4 % | ≤ 5 % |
| Phase shift (2) | Not specified | ≤ 2° | ≤ 2° | ≤ 1.5° | ≤ 1.5° | - |

- **Bandwidth:**
  DC .. 30 kHz at -3 dB (depending on current value)
- **Insertion impedance:**
  0.05 m at 400 Hz, 0.14 m at 1 kHz
- **Maximum currents:**
  3,000 A DC or 1,000 A AC continuous for a frequency < 1 kHz (limitation proportional to the inverse of one third of frequency beyond)
- **DC zero adjustment:**
  Automatic, in increments of 40 to 60 mA
- **AC output noise:**
  1 mV peak-peak
- **Power supply:**
  9 V alkaline (NEDA 1604A, IEC 6LR61)
  5 V DC Micro USB type B
- **Battery life:**
  50 hours typical
- **Consumption:**
  Typical 10 mA (battery)
  Typical 31 mA (5 V µUSB)
- **"ON" LED indicator:**
  "On" = In operation & battery level OK
  "Flashing" = Battery life < 4 hours
  "Colour = green" = APO ON
  "Colour = yellow" = APO OFF
- **"OL" LED indicator:**
  Overload indication; current measured is too high for the calibre being used
- **Effect of the power supply voltage:**
  Null
- **Influence of temperature:**
  ≤ 3 % of the measurement + 100 mA DC/°C
- **Influence of relative humidity:**
  0.5% at 10% to 85% RH at ambient temperature
- **Influence of an adjacent conductor carrying a 50 Hz AC current, situated 23 mm from the clamp:**
  < 10 mA/A
- **Influence of an external field 400 A/m @ 50 Hz:**
  < 1.3 A
- **Influence of conductor position Ø 20 mm in jaws:**
  0.5 %
- **Influence of frequency** (2)**:**
  from 10 Hz .. 400 Hz: 1 % of VS
  from 400 Hz .. 10 kHz: 3.5 % of VS
  from 10 kHz .. 30 kHz: see curve
- **Common mode rejection:**
  > 90 dB A/V @ 50 Hz
- **Remanence:**
  0 to 100 A DC: 2.8 A typical
  0 to 200 A DC: 3.5 A typical
  0 to 400 A DC: 5 A typical
  0 to 800 A DC: 5.3 A typical
  0 to 1,200 A DC: 5.7 A typical
  0 to 1,400 A DC: 5.8 A typical

## Mechanical specifications

- **Max. jaw opening:**
  39 mm
- **Clamping capacity:**
  Cables: Ø 39 mm
  Ø 25.4 mm x 2
  Busbars: 1 busbar 50 x 12.5 mm
  2 busbars 50 x 5 mm or 31.5 x 10 mm
  3 busbars 25 x 8 mm
  4 busbars 25 x 5 mm
- **Output:**
  1.5 m double-insulated lead with safety male plugs (4 mm)
- **Dimensions:**
  236.5 x 97 x 44 mm
- **Mass:**
  520 g with battery
- **Operating temperature:**
  -10°C to +55°C
- **Storage temperature:**
  -40°C to +80°C
- **Max. temperature of clamped conductor (measured):**
  +90 °C (+110 °C at peak)
- **Max. jaw temperature:**
  +80 °C
- **Relative humidity for operation:**
  0 to 85 % RH with a linear decrease above 35 °C
- **Operating altitude:**
  0 to 2,000 m
- **Casing protection rating:**
  IP 40 (IEC 60529)
- **Drop test:**
  1 m (IEC 60068-2-32)
- **Self-extinguishing capability:**
  UL94 V1
- **Colours:**
  Dark grey case with red jaws

## Safety specifications

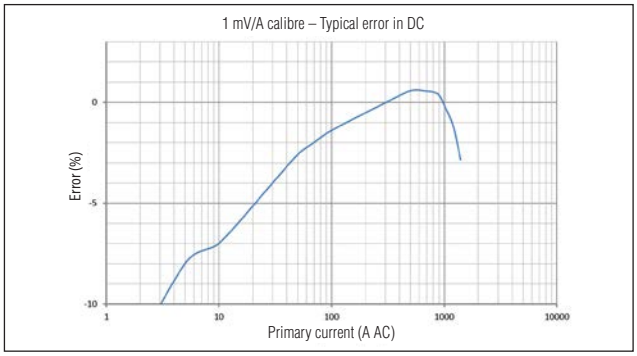
- **Electrical safety:**
  Type A instrument, with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per CEI 61010-1 & CEI 61010-2-032
  - 600 V category III, pollution degree 2
  - 300 V category IV, pollution degree 2
- **Electromagnetic compatibility (EMC): :**
  Compliant with IEC 61326-1 (portable instrument)

# CURRENT CLAMPS FOR AC/DC CURRENT

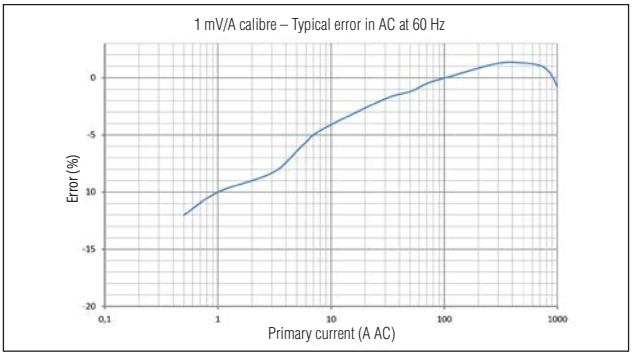
## Model PAC25

## Curves

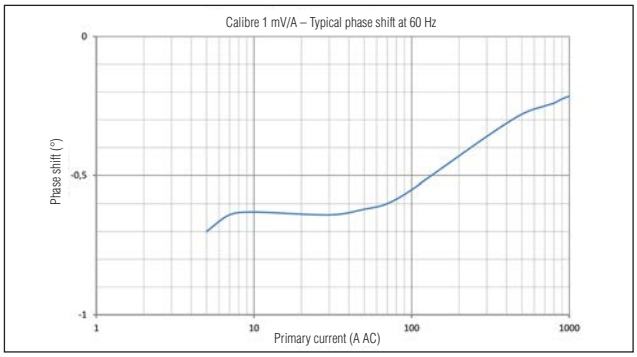
Linearity for DC



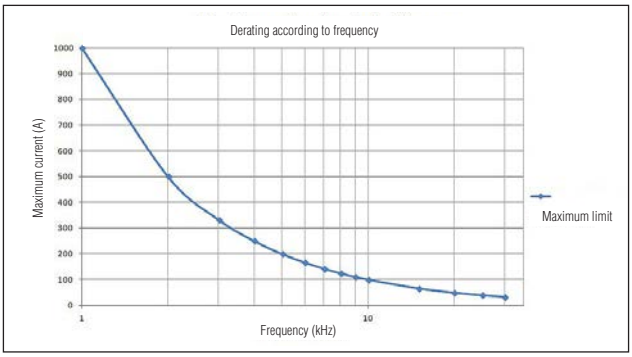

Linearity for AC



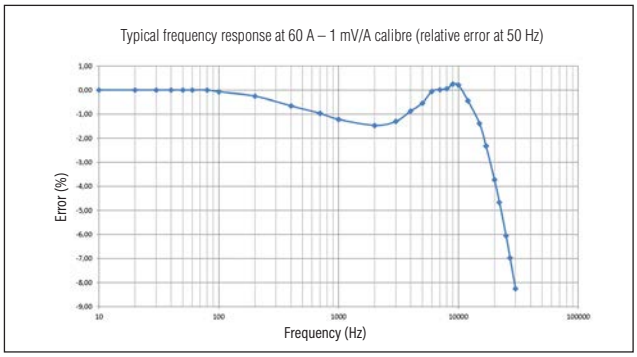

Phase shift



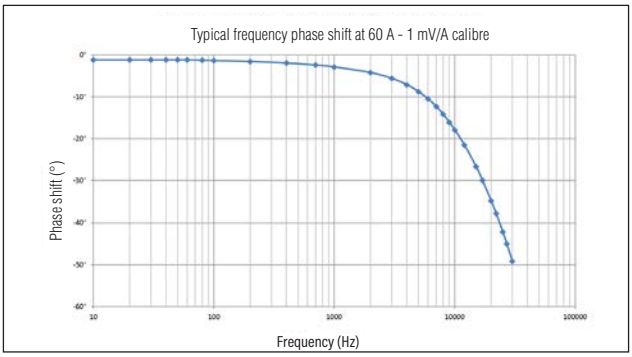

Limitation of the measurable current as a function of frequency




Frequency response




Frequency phase shift




(1) Conditions of reference:
Temperature & humidity: 23 °C ± 5 °K, 20% to 75% RH
Power supply: via a battery between 6 V and 9 V, via µUSB 5 ± 0.1 VDC
Position of the conductor centred on the clamp markings
Magnetic field: continuous Earth's magnetic field.
No external alternating magnetic field.
No electric field.
Measurement for a sinusoidal DC current at 65 Hz.
Instrument impedance: > 1 MΩ ≤ 100 pF.

(2) Out of reference domain

| To order | Reference |
|---|---|
| AC/DC current clamps, model **PAC25**, with battery and user manual | P01120125 |

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC26

| | | |
|---|---|---|
| **Current** | 100 A AC<br>150 A DC | 1,000 A AC<br>1,400 A DC |
| **Output** | 10 mV/A | 1 mV/A |




## Description

The PAC26 model provides accurate measurement of AC or DC currents using the Hall effect principle. This mV-output clamp meter is equipped with an automatic DC zero system and a disengageable Auto Power Off (APO) function, and can be powered by a standard mains adapter via a Micro USB connector.

## Electrical specifications

- **Current range:**
  0.2 A AC .. 100 A AC (150 A peak) / 0.4 A DC .. 150 A DC
  0.5 A AC .. 1,000 A AC (1,400 A peak) / 0.5 A DC .. 1,400 A DC
- **Output signal:**
  10 mV AC+ DC / A AC+ DC (0.6 V at 150 A)
  1 mV AC+ DC / A AC+ DC (0.6 V at 1,400 A)
- **Accuracy and phase shift** [1]**:**
  - 150 A calibre

| Primary current: | 0.5 A .. 1 A | 1 A .. 40 A | 40 A .. 100 A | 100 A .. 150 A (DC only) |
|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 3 % + 8 mV | ≤ 3 % + 8 mV | ≤ 1.5 % | ≤ 1.5 % |
| Phase shift [2] | Not specified | ≤ 2° | ≤ 2° | - |

  - 1,400 A calibre

| Primary current: | 0.5 A .. 3 A | 3 A .. 100 A | 100 A .. 200 A | 200 A .. 800 A | 800 A .. 1,000 A | 1,000 A .. 1,400 A (DC only) |
|---|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 2 % + 1.5 mV | ≤ 2 % + 1.5 mV | ≤ 2.5 % | ≤ 2.5 % | ≤ 4 % | ≤ 5 % |
| Phase shift [3] | Not specified | ≤ 2° | ≤ 2° | ≤ 1.5° | ≤ 1.5° | - |

- **Bandwidth:**
  DC .. 30 kHz at -3 dB (depending on current value)
- **Insertion impedance:**
  0.05 mΩ at 400 Hz, 0.14 mΩ at 1 kHz
- **Maximum currents:**
  3,000 A DC or 1,000 A AC continuous for a frequency < 1 kHz (limitation proportional to the inverse of one third of frequency beyond)
- **DC zero adjustment:**
  Automatic, in increments of 40 to 60 mA
- **AC output noise:**
  - 150 A calibre: ≤ 3 mV or 0.3 A peak-peak
  - 1,400 A calibre: ≤ 1 mV or 1 A peak-peak
- **Power supply:**
  9 V alkaline (NEDA 1604A, IEC 6LR61)
  5 V DC Micro USB type B
- **Battery life:**
  50 hours typical
- **Consumption:**
  Typical 10 mA (battery)
  Typical 31 mA (5 V µUSB)
- **"ON" LED indicator:**
  "On" = In operation & battery level OK
  "Flashing" = Battery life < 4 hours
  "Colour = green" = APO ON
  "Colour = yellow" = APO OFF
- **"OL" LED indicator:**
  Overload indication; current measured is too high for the calibre being used
- **Effect of the power supply voltage:** Null
- **Influence of temperature:**
  ≤ 3 % of the measurement + 100 mA DC/°C
- **Influence of relative humidity:**
  ≤ 0.5% at 10% to 85% RH at ambient temperature
- **Influence of an adjacent conductor carrying a 50 Hz AC current, situated 23 mm from the clamp:**
  < 10 mA/A
- **Influence of an external field 400 A/m @ 50 Hz:**
  < 1.3 A
- **Influence of conductor position Ø 20 mm in jaws:**
  ≤ 0.5 %
- **Influence of frequency** [2]**:**
  - Calibre 150 A:
    from 10 Hz .. 400 Hz: ≤ 1 % of Vs
    from 400 Hz .. 7 kHz: ≤ 3.5 % of Vs
    from 7 kHz .. 30 kHz: see curve
  - Calibre 1,400 A:
    from 10 Hz .. 400 Hz: ≤ 1 % of Vs
    from 400 Hz .. 10 kHz: ≤ 3.5 % of Vs
    from 10 kHz .. 30 kHz: see curve
- **Common mode rejection:**
  > 90 dB A/V @ 50 Hz
- **Remanence:**
  0 to 100 A DC: 2.8 A typical
  0 to 200 A DC: 3.5 A typical
  0 to 400 A DC: 5 A typical
  0 to 800 A DC: 5.3 A typical
  0 to 1,200 A DC: 5.7 A typical
  0 to 1,400 A DC: 5.8 A typical

## Mechanical specifications

- **Max. jaw opening:**
  39 mm
- **Clamping capacity:**
  Cables: Ø 39 mm
  Ø 25.4 mm x 2
  Busbars: 1 busbar 50 x 12.5 mm
  2 busbars 50 x 5 mm or 31.5 x 10 mm
  3 busbars 25 x 8 mm
  4 busbars 25 x 5 mm
- **Output:**
  1.5 m double-insulated lead with safety male plugs (4 mm)
- **Dimensions:**
  236.5 x 97 x 44 mm
- **Mass:**
  520 g with battery
- **Operating temperature:**
  -10°C to +55°C
- **Storage temperature:**
  -40°C to +80°C

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC26

- **Max. temperature of clamped conductor (measured):**
  +90 °C (+110 °C at peak)
- **Max. jaw temperature:**
  +80 °C
- **Relative humidity for operation:**
  0 to 85 % RH with a linear decrease above 35 °C
- **Operating altitude:**
  0 to 2,000 m
- **Casing protection rating:**
  IP 40 (IEC 60529)
- **Drop test:**
  1 m (IEC 60068-2-32)
- **Self-extinguishing capability:**
  UL94 V1
- **Colours:**
  Dark grey case with red jaws

### Safety specifications

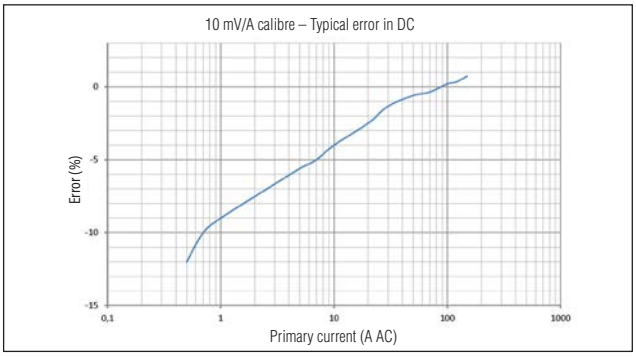
- **Electrical safety:**
  Type A instrument, with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per CEI61010-1 & CEI 61010-2-032
  - 600 V category III, pollution degree 2
  - 300 V category IV, pollution degree 2
- **Electromagnetic compatibility (EMC): :**
  Compliant with IEC 61326-1 (portable instrument)

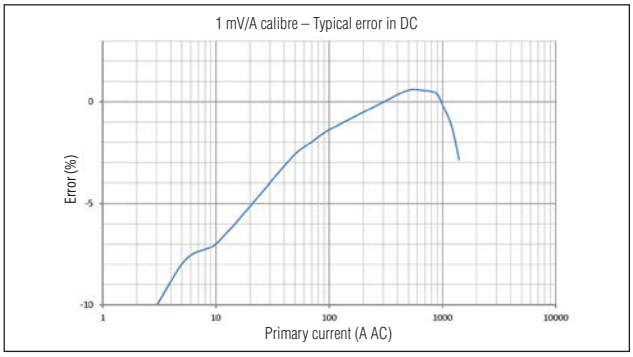
### Curves

150 A calibre

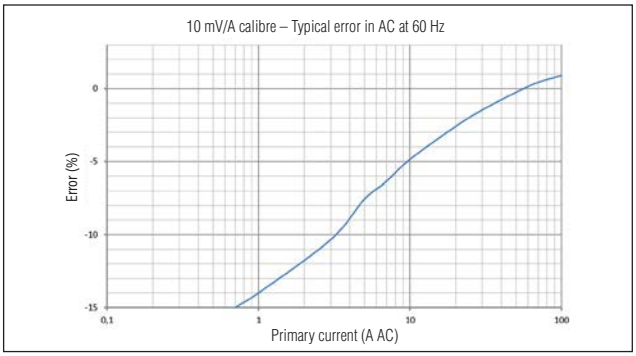
1,400 A calibre

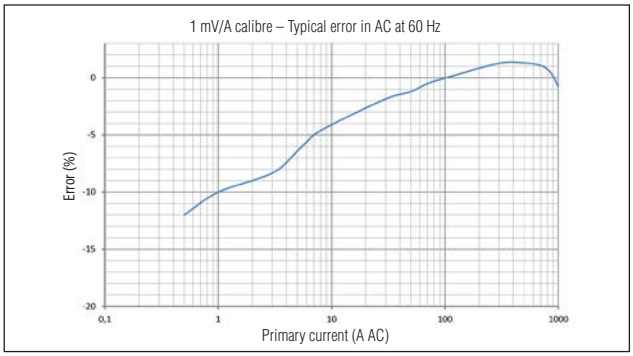
Linearity for DC



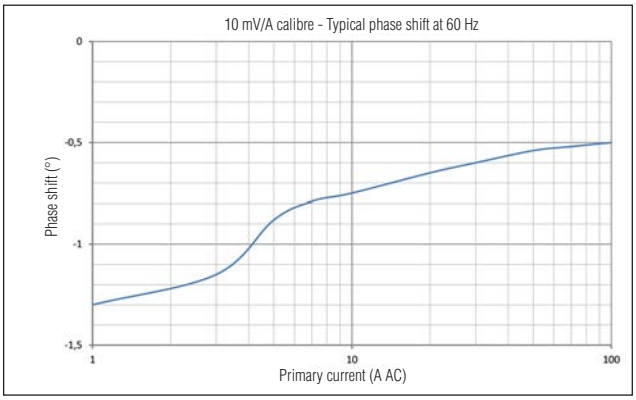



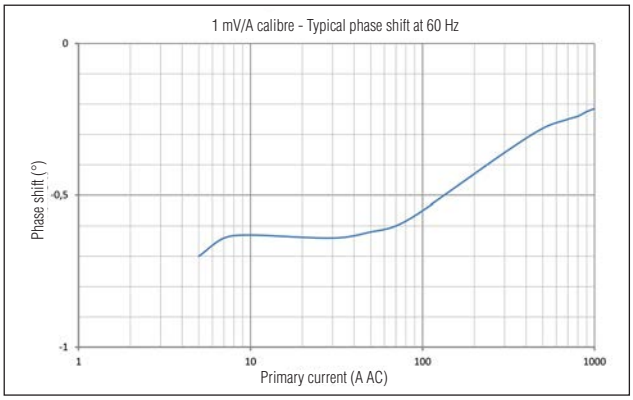

Linearity for AC




Phase shift



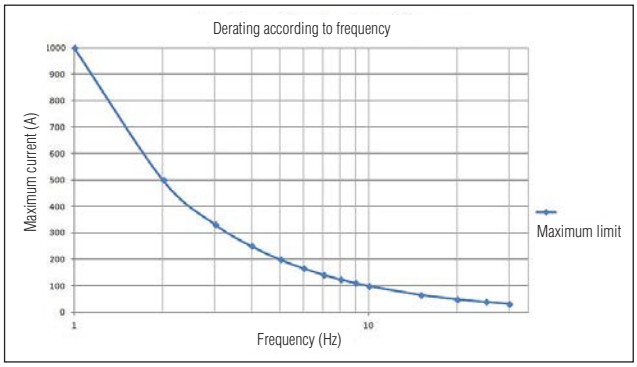



# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC26

## Curves

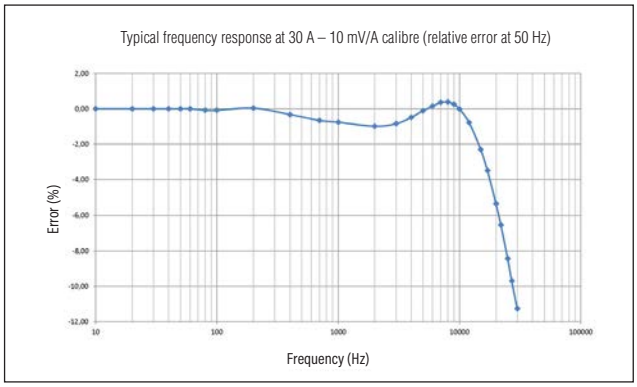
Limitation of the measurable current as a function of frequency

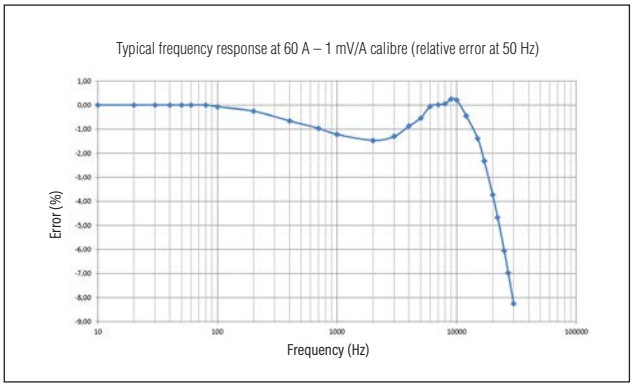



### 150 A calibre

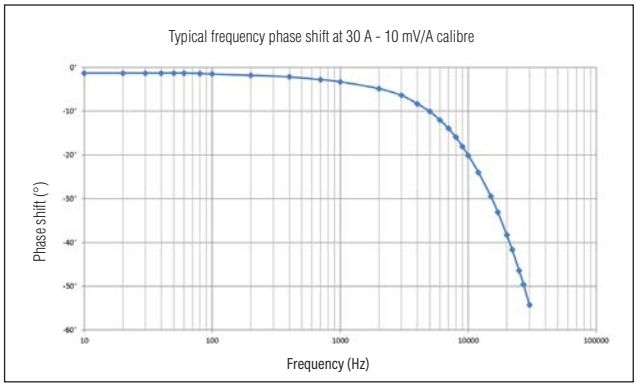
### 1,400 A calibre

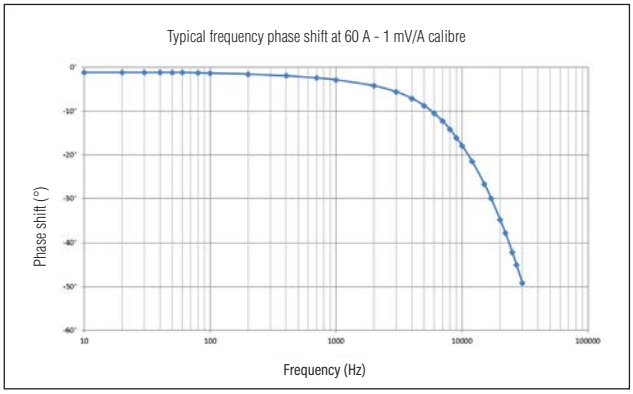
Frequency response




Frequency phase shift




(1) Conditions of reference:
Temperature & humidity: 23 °C ± 5 °K, 20% to 75% RH
Power supply: via a battery between 6 V and 9 V, via µUSB 5 ± 0.1 VDC
Position of the conductor centred on the clamp markings
Magnetic field: continuous Earth's magnetic field.
No external alternating magnetic field.
No electric field.
Measurement for a sinusoidal DC current at 65 Hz.
Instrument impedance: > 1 MΩ ≤ 100 pF.

(2) Out of reference domain

| To order | Reference |
|---|---|
| AC/DC current clamps, model **PAC26**, with battery and user manual | P01120126 |

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC27 (insulated AC/DC current probe)

| | | |
|---|---|---|
| **Current** | 100 A AC<br>150 A DC | 1,000 A AC<br>1,400 A DC |
| **Output** | 10 mV/A | 1 mV/A |




## Description

The PAC27 model provides accurate measurement of AC or DC currents using the Hall effect principle. This mV-to-BNC output clamp (for direct reading on oscilloscopes, etc.) is equipped with an automatic DC zero system and a disengageable Auto Power Off (APO) function, and can be powered by a standard mains adapter via a Micro USB connector.

## Electrical specifications

- **Current range:**
  0.2 A AC .. 100 A AC (150 A peak) / 0.4 ADC .. 150 A DC
  0.5 A AC .. 1,000 A AC (1,400 A peak) / 0.5 ADC .. 1,400 A DC
- **Output signal:**
  1 mV AC+DC / A AC+DC (1.4 V for 1,400 A)
- **Accuracy and phase shift** [1]**:**
- 150 A calibre

| Primary current: | 0.5 A .. 1 A | 1 A .. 40 A | 40 A .. 100 A | 100 A .. 150 A (DC only) |
|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 3 % + 8 mV | ≤ 3 % + 8 mV | ≤ 1.5 % | ≤ 1.5 % |
| Phase shift [2] | Not specified | ≤ 2° | ≤ 2° | - |

- 1,400 A calibre

| Primary current: | 0.5 A .. 3 A | 3 A .. 100 A | 100 A .. 200 A | 200 A .. 800 A | 800 A .. 1,000 A | 1,000 A .. 1,400 A (DC only) |
|---|---|---|---|---|---|---|
| Accuracy in % of output signal | ≤ 2 % + 1.5 mV | ≤ 2 % + 1.5 mV | ≤ 2.5 % | ≤ 2.5 % | ≤ 4 % | ≤ 5 % |
| Phase shift [3] | Not specified | ≤ 2° | ≤ 2° | ≤ 1.5° | ≤ 1.5° | - |

- **Bandwidth:**
  DC .. 30 kHz at -3 dB (depending on current value)
- **Rise time (10% to 90% of Vs)**
  ≤ 11 µs
- **Fall time (90% to 10% of Vs)**
  ≤ 11 µs
- **10 % delay time:**
  ≤ 10 µs
- **Insertion impedance:**
  0.05 mΩ at 400 Hz, 3.4 mΩ at 10 kHz
- **Maximum currents:**
  3,000 A DC or 1,000 A AC continuous for a frequency < 1 kHz (limitation proportional to the inverse of one third of frequency beyond)
- **DC zero adjustment:**
- Calibre 150 A & 1,400 A:
  Automatic, in increments of 40 to 60 mA
- **AC output noise:**
- 150 A calibre: ≤ 3 mV or 0.3 A peak-peak
- 1,400 A calibre: ≤ 1 mV or 1 A peak-peak
- **Power supply:**
  9 V alkaline (NEDA 1604A, IEC 6LR61)
  5 V DC Micro USB type B
- **Battery life:**
  50 hours typical
- **Consumption:**
  Typical 10 mA (battery)
  Typical 31 mA (5 V µUSB)
- **"ON" LED indicator:**
  "On" = In operation & battery level OK
  "Flashing" = Battery life < 4 hours
  "Colour = green" = APO ON
  "Colour = yellow" = APO OFF
- **"OL" LED indicator:**
  Overload indication; current measured is too high for the calibre being used
- **Effect of the power supply voltage:**
  Null
- **Influence of temperature:**
  ≤ 3 % of the measurement + 100 mA DC/°C
- **Influence of relative humidity:**
  ≤ 0.5% at 10% to 85% RH at ambient temperature
- **Influence of an adjacent conductor carrying a 50 Hz AC current, situated 23 mm from the clamp:**
  < 10 mA/A
- **Influence of an external field 400 A/m @ 50 Hz:**
  < 1.3 A
- **Influence of conductor position Ø 20 mm in jaws:**
  ≤ 0.5 %
- **Influence of frequency** [2]**:**
- Calibre 150 A:
  from 10 Hz .. 400 Hz: ≤ 1 % of Vs
  from 400 Hz .. 7 kHz: ≤ 3.5 % of Vs
  from 7 kHz .. 30 kHz: see curve
- Calibre 1,400 A:
  from 10 Hz .. 400 Hz: ≤ 1 % of Vs
  from 400 Hz .. 10 kHz: ≤ 3.5 % of Vs
  from 10 kHz .. 30 kHz: see curve
- **Common mode rejection:**
  > 90 dB A/V @ 50 Hz
- **Remanence:**
  0 to 100 A DC: 2.8 A typical
  0 to 200 A DC: 3.5 A typical
  0 to 400 A DC: 5 A typical
  0 to 800 A DC: 5.3 A typical
  0 to 1,200 A DC: 5.7 A typical
  0 to 1,400 A DC: 5.8 A typical

## Mechanical specifications

- **Max. jaw opening:**
  39 mm
- **Clamping capacity:**
  Cables: Ø 39 mm
  Ø 25.4 mm x 2
  Busbars: 1 busbar 50 x 12.5 mm
  2 busbars 50 x 5 mm or 31.5 x 10 mm
  3 busbars 25 x 8 mm
  4 busbars 25 x 5 mm
- **Output:**
  Coaxial cable 2 m long, terminated by an insulated BNC connector
- **Dimensions:**
  236.5 x 97 x 44 mm

# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC27 (insulated AC/DC current probe)

- **Mass:**
  520 g with battery
- **Operating temperature:**
  -10°C to +55°C
- **Storage temperature:**
  -40°C to +80°C
- **Max. temperature of clamped conductor (measured):**
  +90 °C (+110 °C at peak)
- **Max. jaw temperature:**
  +80 °C
- **Relative humidity for operation:**
  0 to 85 % RH with a linear decrease above 35 °C
- **Operating altitude:**
  0 to 2,000 m
- **Casing protection rating:**
  IP 40 (IEC 60529)
- **Drop test:**
  1 m (IEC 60068-2-32)
- **Self-extinguishing capability:**
  UL94 V1
- **Colours:**
  Dark grey case with red jaws

### Safety specifications

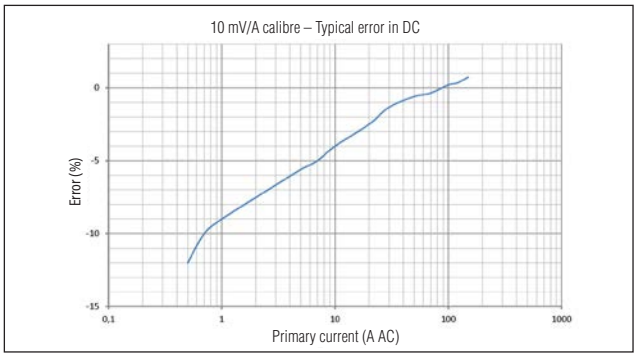
- **Electrical safety:**
  Type A instrument, with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per CEI 61010-1 & CEI 61010-2-032
  - 600 V category III, pollution degree 2
  - 300 V category IV, pollution degree 2
- **Electromagnetic compatibility (EMC): :**
  Compliant with IEC 61326-1 (portable instrument)

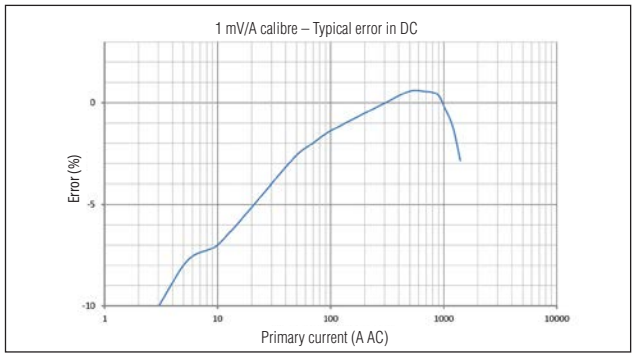
### Curves

150 A calibre

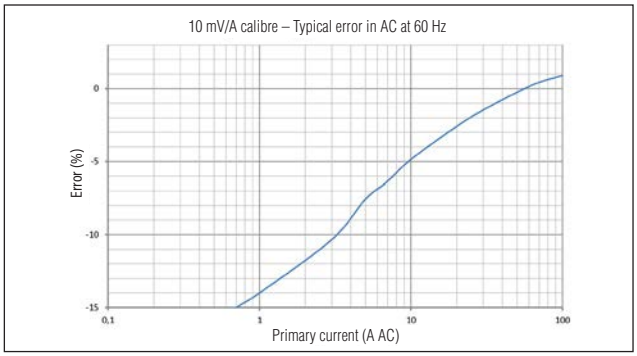
1,400 A calibre

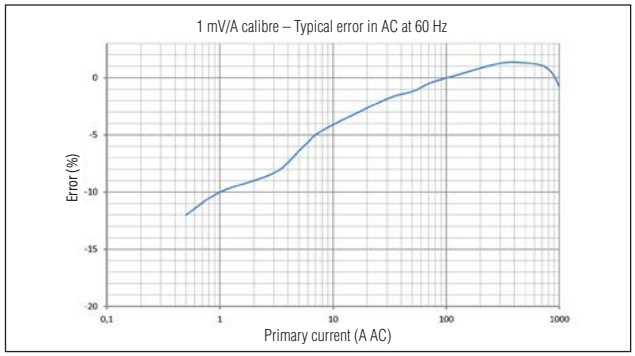
Linearity for DC



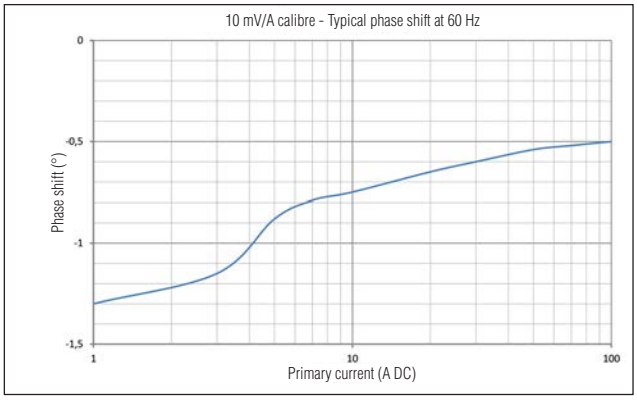



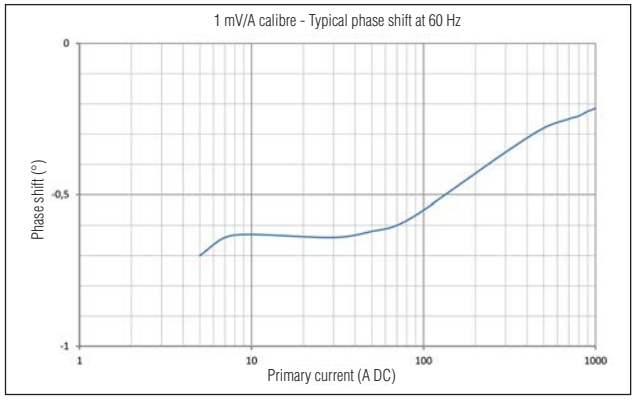

Linearity for AC




Phase shift



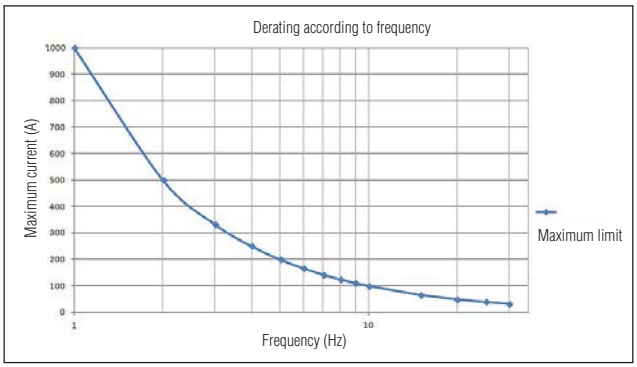



# CURRENT CLAMPS FOR AC/DC CURRENT

## Model PAC27 (insulated AC/DC current probe)

### Curves

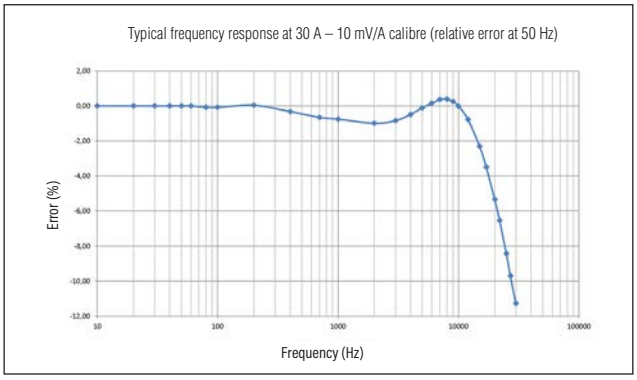
Limitation of the measurable current as a function of frequency

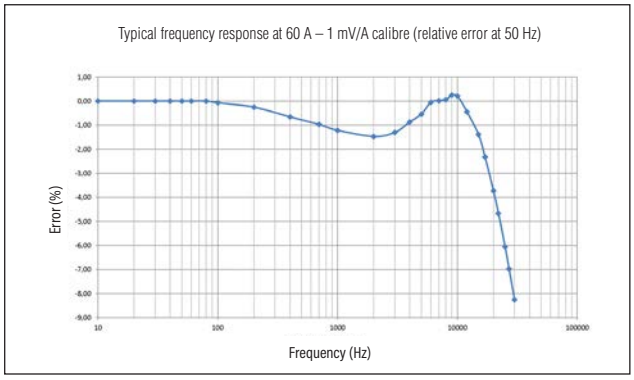



150 A calibre

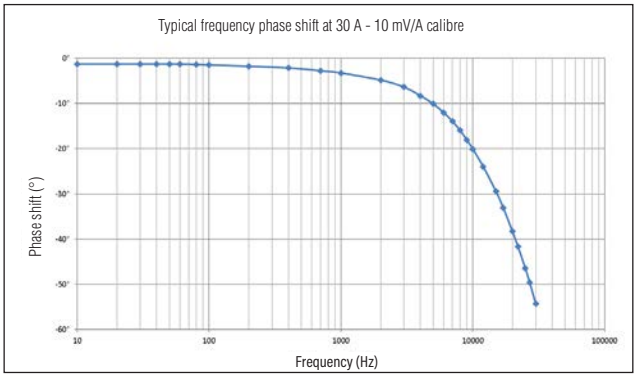
1,400 A calibre

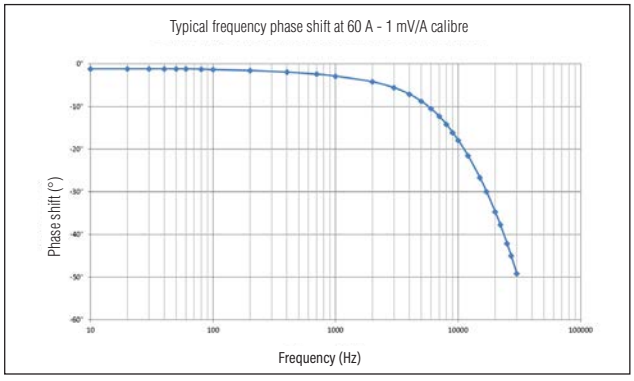
Frequency response




Frequency phase shift



# CURRENT CLAMPS FOR AC/DC CURRENT

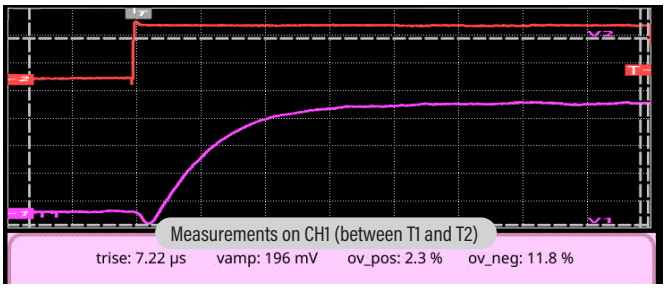
## Model PAC27 (insulated AC/DC current probe)

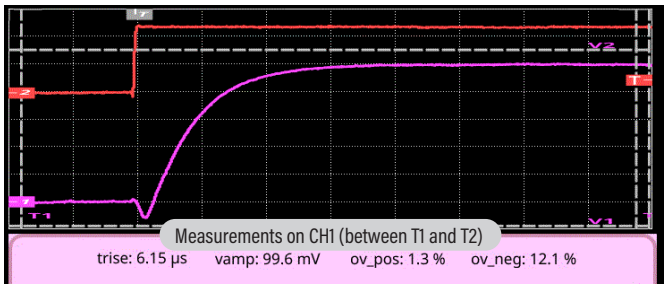
### Curves

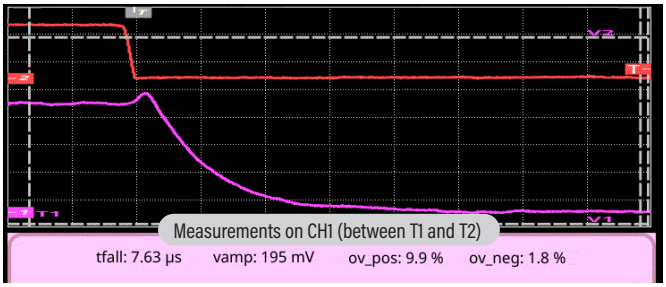
150 A calibre

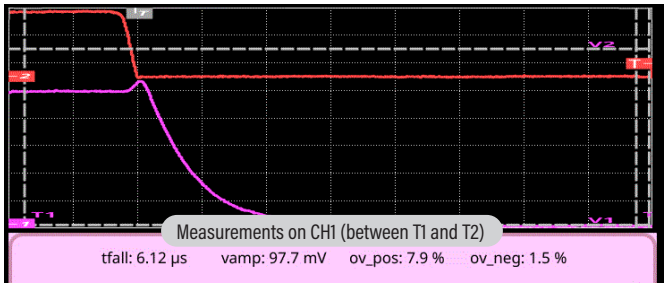
1,400 A calibre

Pulse response




(1) Conditions of reference:
Temperature & humidity: 23 °C ± 5 °K, 20% to 75% RH
Power supply: via a battery between 6 V and 9 V, via µUSB 5 ± 0.1 VDC
Position of the conductor centred on the clamp markings
Magnetic field: continuous Earth's magnetic field.
No external alternating magnetic field.
No electric field.
Measurement for a sinusoidal DC current at 65 Hz.
Instrument impedance: > 1 MΩ ≤ 100 pF.

(2) Out of reference domain

| To order | Reference |
|---|---|
| AC/DC current clamp, model **PAC27,** for oscilloscopes, with battery and operating user manual | P01120127 |