

## Current clamps for AC current

**D<sub>N</sub> series**

### D<sub>N</sub> SERIES

The D<sub>N</sub> series comprises a range of high-performance clamp-on AC current probes designed for high current measurements. Their excellent current transformation ratios and low phase shift, combined with a broad frequency response, allows highly accurate current and power measurements. High-quality magnetic cores and windings mean high precision current measurement up to 3,000 A (AC). The rectangular jaws can be used to clamp large-diameter cables or busbars.

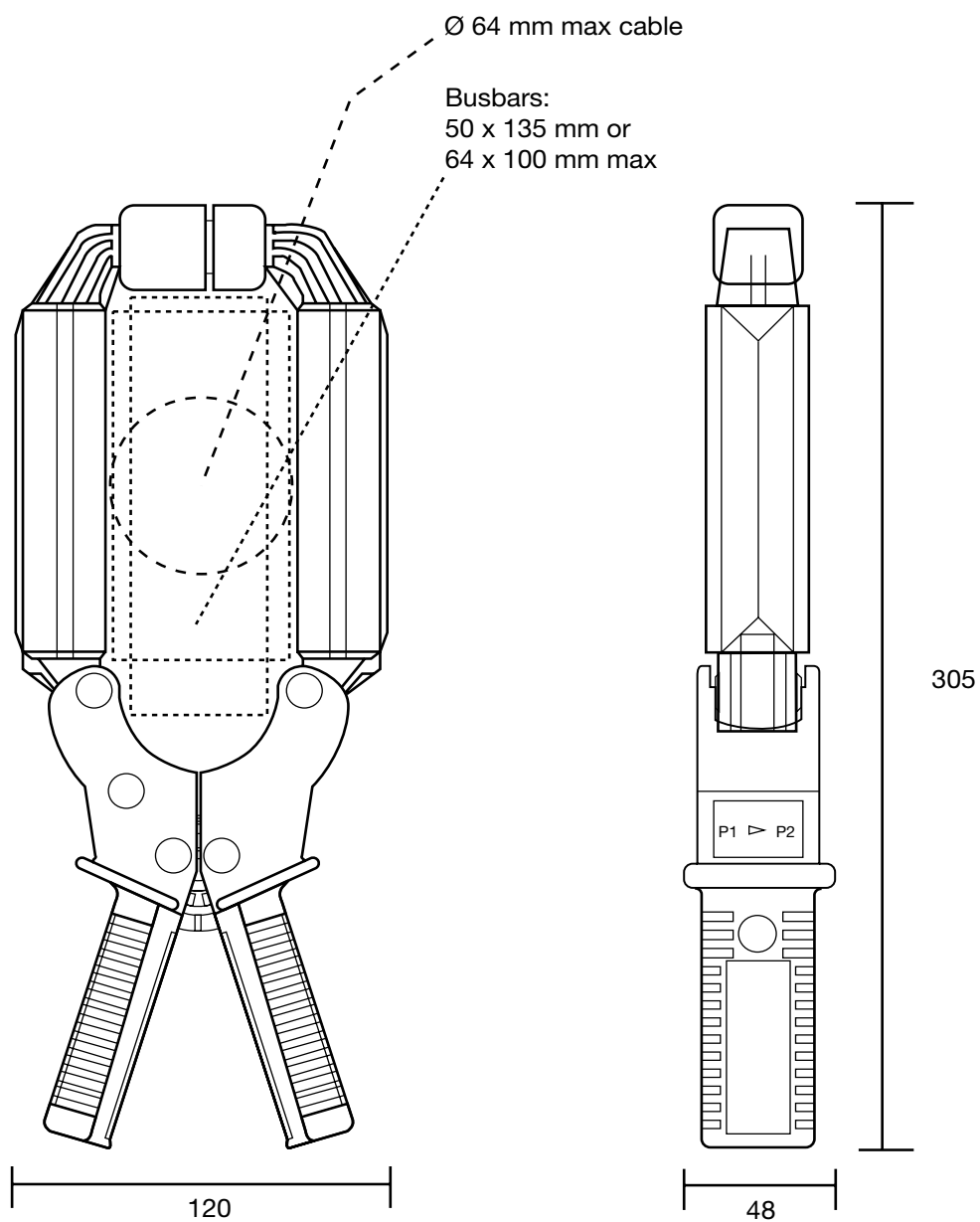
The DN series clamps provide true RMS measurement values and faithful signal reproduction.

There are two different kinds of model available in the D<sub>N</sub> series: the first acts as a traditional current transformer with a current output (mA) and has a wide range of voltage ratios.

These clamps may also be used with multimeters, harmonic and power measurement equipment, logging apparatus or other instruments allowing AC current input.

The second type of model gives a voltage output in precise proportion to the measured current (1 mV/A, 10 mV/A or 100 mV/A) so you can display and log currents on instruments without current inputs.

Model D38N has been specifically designed for use with oscilloscopes, or other instruments with a BNC input.



# Current clamps for AC current

## Models D30N and D30CN

D<sub>N</sub> series

|         |            |
|---------|------------|
| Current | 2,400 A AC |
| Ratio   | 3000:1     |
| Output  | 0.333 mA/A |

### ELECTRICAL SPECIFICATIONS

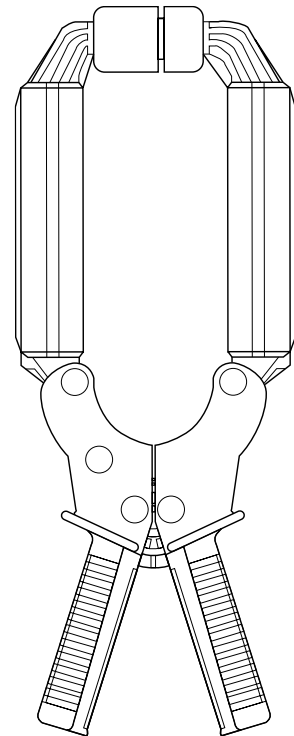
- **Current range:**  
1 A AC ... 2,400 A AC  
(3,000 A for temperature < 35 °C)
- **Current transformation ratio:**  
3000:1
- **Output signal:**  
0.333 mA/A AC (1 A to 3,000 A)
- **Accuracy and phase shift <sup>(1)</sup>:**

| Primary current             | 150 A | 600 A  | 3,000 A |
|-----------------------------|-------|--------|---------|
| % Accuracy of output signal | 1.5 % | 0.75 % | 0.5 %   |
| Phase shift                 | 1.5°  | 0.75°  | 0.5°    |

- **Overload:**  
3600 A for 5 minutes
- **Maximum output voltage (secondary open):**  
Electronic protection circuit limiting voltage to 42 V peak max.
- **Accuracy:**  
In accordance with IEC 185-26-27, 5 VA, class 0.5 from 48 Hz to 1,000 Hz
- **Bandwidth:**  
30 Hz to 5 kHz (in continuous use above 1 kHz, the max. measurement current is limited)
- **Ampere second product:**  
90 A.s
- **Load impedance:**  
< 5 Ω
- **Operating voltage:**  
600 V AC
- **Common mode voltage:**  
600 V AC
- **Influence of adjacent conductor:**  
0.005 A/A AC
- **Influence of conductor position in jaws:**  
1 % ± 0.1 A

### MECHANICAL SPECIFICATIONS

- **Operating temperature:**  
-10 °C to +50 °C
- **Storage temperature:**  
-25 °C to +80 °C
- **Influence of temperature:**  
< 0.1 % per 10 °K
- **Max. jaw opening:**  
90 mm
- **Max. jaw insertion capacity:**  
Cable: 64 mm  
Group of wires: 50 x 135 mm - 64 x 100 mm
- **Casing protection rating:**  
IP20 in accordance with IEC 529
- **Drop test:**  
500 mm (IEC 68-2-32)
- **Shock resistance:**  
100 g, in accordance with IEC 68-2-27
- **Vibration resistance:**  
10/55/10 Hz, 0.15 mm test in accordance with IEC 68-2-6
- **Self-extinguishing capability:**  
Casing: UL94 V0  
Jaws: UL94 V2
- **Dimensions:**  
120 x 315 x 48 mm
- **Weight:**  
1,200 g
- **Colour:**  
Dark grey casing with red jaws
- **Output:**
  - D30N: two safety sockets (4 mm)
  - D30CN: two-wire 1.5 m cable with reinforced insulation or double insulation ending with 2 elbowed 4 mm male safety plugs



### SAFETY SPECIFICATIONS

- **Electrical safety:**  
Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:  
- Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample, load impedance 5 Ω.

| To order                                                  | Reference  |
|-----------------------------------------------------------|------------|
| AC current clamp model <b>D30N</b> with operating manual  | P01120049A |
| AC current clamp model <b>D30CN</b> with operating manual | P01120064  |

# Current clamp for AC current

## Model D31N

D<sub>N</sub> series

| Current | 500 A AC | 1,000 A AC | 1,500 A AC |
|---------|----------|------------|------------|
| Ratio   | 500:1    | 1000:1     | 1500:1     |
| Output  | 2 mA/A   | 1 mA/A     | 0.66 mA/A  |

### ELECTRICAL SPECIFICATIONS

- Current range:**  
1 A AC .. 500 A AC  
1 A AC .. 1,000 A AC  
1 A AC .. 1,500 A AC
- Current transformation ratio:**  
500:1, 1000:1, 1500:1
- Output signal:**  
2 mA/A AC (1 A to 500 A)  
1 mA/A AC (1 A to 1,000 A)  
0.66 mA/A AC (1 A to 1,500 A)
- Accuracy and phase shift <sup>(1)</sup>:**

#### ■ 500 A calibre

| Primary current             | 25 A | 100 A | 500 A |
|-----------------------------|------|-------|-------|
| % Accuracy of output signal | 4 %  | 3 %   | 3 %   |
| Phase shift                 | 4°   | 3.5°  | 2°    |

- Load impedance: 5 Ω
- Overload: 700 A for 10 minutes
- Ampere second product: 6 A.s
- Accuracy: in accordance with IEC 185-26-27, 5 VA, class 3 from 48 Hz to 1,000 Hz

#### ■ 1,000 A calibre

| Primary current             | 50 A | 200 A | 1,000 A |
|-----------------------------|------|-------|---------|
| % Accuracy of output signal | 3 %  | 1.5 % | 1 %     |
| Phase shift                 | 3°   | 1.5°  | 1°      |

- Load impedance: 5 Ω
- Overload: 1,400 A for 10 minutes
- Ampere second product: 30 A.s
- Accuracy: in accordance with IEC 185-26-27, 5 VA, class 1 from 48 Hz to 1,000 Hz

#### ■ 1,500 A calibre

| Primary current             | 75 A  | 300 A  | 1,500 A |
|-----------------------------|-------|--------|---------|
| % Accuracy of output signal | 1.5 % | 0.75 % | 0.5 %   |
| Phase shift                 | 1.5°  | 0.75°  | 0.5°    |

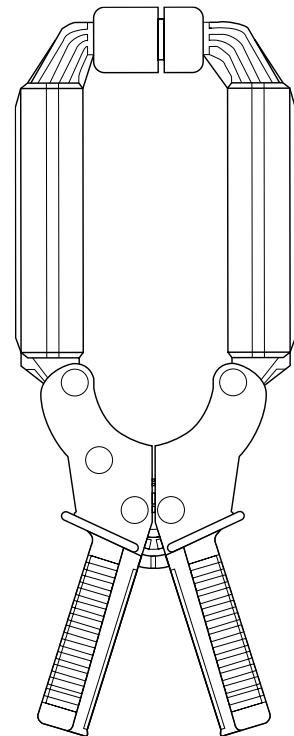
- Load impedance: 5 Ω
- Overload: 1800 A for 10 minutes
- Ampere second product: 65 A.s
- Accuracy: in accordance with IEC 185-26-27, 5 VA class 0.5 from 48 Hz to 1,000 Hz

- Bandwidth:**  
30 Hz to 1,500 Hz (in continuous use above 1 kHz the max. measurement current is limited)

- Load impedance:**  
< 5 Ω
- Operating voltage:**  
600 V AC
- Common mode voltage:**  
600 V AC
- Maximum output voltage (secondary open):**  
Electronic protection circuit limiting voltage to 42 V peak max
- Influence of adjacent conductor:**  
0.005 A/A AC
- Influence of conductor position in jaws:**  
1.5 % ± 0.2 A on the 500:1 ratio  
1 % ± 0.2 A on the 1000:1 ratio  
1 % ± 0.2 A on the 1500:1 ratio

### MECHANICAL SPECIFICATIONS

- Operating temperature:**  
-10 °C to +50 °C
- Storage temperature:**  
-25 °C to +80 °C
- Influence of temperature:**  
< 0.1 % per 10 °K
- Max. jaw opening:**  
90 mm
- Max. jaw insertion capacity:**  
Cable: 64 mm  
Group of wires: 50 x 135 mm - 64 x 100 mm
- Casing protection rating:**  
IP20 in accordance with IEC 529
- Drop test:**  
500 mm (IEC 68-2-32)
- Shock resistance:**  
100 g, in accordance with IEC 68-2-27
- Vibration resistance:**  
10/55/10 Hz, 0.15 mm  
test in accordance with IEC 68-2-6
- Self-extinguishing capability:**  
Casing: UL94 V0  
Jaws: UL94 V2
- Dimensions:**  
120 x 315 x 48 mm
- Weight:**  
1,200 g
- Colour:**  
Dark grey casing with red jaws
- Output:**  
2 Safety sockets (4 mm)



### SAFETY SPECIFICATIONS

- Electrical safety:**  
Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:  
- Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D31N</b> with operating manual | P01120050A |

# Current clamp for AC current

## Model D32N

D<sub>N</sub> series

| Current | 1,000 A AC | 2,000 A AC | 2,400 A AC |
|---------|------------|------------|------------|
| Ratio   | 1000:1     | 2000:1     | 3000:1     |
| Output  | 1 mA/A     | 0.5 mA/A   | 0.333 mA/A |

### ELECTRICAL SPECIFICATIONS

- Current range:**
  - 1 A AC .. 1,000 A AC
  - 1 A AC .. 2,000 A AC
  - 1 A AC .. 2,400 A AC
- Current transformation ratio:**
  - 1000:1, 2000:1, 3000:1
- Output signal:**
  - 1 mA/A AC (1 A to 1,000 A)
  - 0.5 mA/A AC (1 A to 2,000 A)
  - 0.333 mA/A AC (1 A to 3,000 A)

- Accuracy and phase shift <sup>(1)</sup>:**

- 1,000 A calibre

| Primary current             | 50 A | 200 A | 1,000 A |
|-----------------------------|------|-------|---------|
| % Accuracy of output signal | 3 %  | 1.5 % | 1 %     |
| Phase shift                 | 3°   | 1.5°  | 1°      |

- Load impedance: 2.5 Ω
- Overload: 1,400 A for 10 minutes
- Ampere second product: 25 A.s
- Accuracy: in accordance with IEC 185-26-27, 2.5 VA, class 1 from 48 Hz to 1,000 Hz

- 2,000 A calibre

| Primary current             | 100 A | 400 A  | 2,000 A |
|-----------------------------|-------|--------|---------|
| % Accuracy of output signal | 1.5 % | 0.75 % | 0.5 %   |
| Phase shift                 | 1.5°  | 0.75°  | 0.5°    |

- Load impedance: 5 Ω
- Overload: 2,400 A for 10 minutes
- Ampere second product: 60 A.s
- Accuracy: in accordance with IEC 185-26-27, 5 VA, class 0.5 from 48 Hz to 1,000 Hz

- 3,000 A calibre

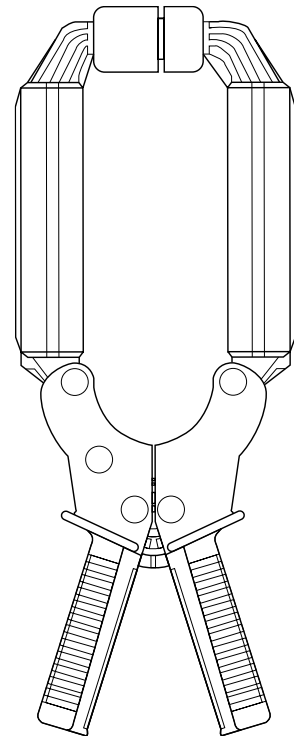
| Primary current             | 150 A | 600 A  | 3,000 A |
|-----------------------------|-------|--------|---------|
| % Accuracy of output signal | 1.5 % | 0.75 % | 0.5 %   |
| Phase shift                 | 1.5°  | 0.75°  | 0.5°    |

- Load impedance: 10 Ω
- Overload: 3,400 A for 10 minutes
- Ampere second product: 90 A.s
- Accuracy: in accordance with IEC 185-26-27, 10 VA class 0.5 from 48 Hz to 1,000 Hz

- Bandwidth:**
  - 30 Hz to 1,000 Hz (in continuous use above 600 Hz the max. measurement current is limited)
- Load impedance:**
  - < 10 Ω max
- Operating voltage:**
  - 600 V AC
- Common mode voltage:**
  - 600 V AC
- Maximum output voltage (secondary open):**
  - Electronic protection circuit limiting voltage to 42 V peak max
- Influence of adjacent conductor:**
  - 0.005 A/A AC
- Influence of conductor position in jaws:**
  - 1.5 % ± 0.2 A on the 1000:1 ratio
  - 1 % ± 0.2 A on the 2000:1 ratio
  - 1 % ± 0.2 A on the 3000:1 ratio

### MECHANICAL SPECIFICATIONS

- Operating temperature:**
  - 10 °C to +50 °C
- Storage temperature:**
  - 25 °C to +80 °C
- Influence of temperature:**
  - < 0.1 % per 10 °K
- Max. jaw opening:**
  - 90 mm
- Max. jaw insertion capacity:**
  - Cable: 64 mm
  - Group of wires: 50 x 135 mm - 64 x 100 mm
- Casing protection rating:**
  - IP20 in accordance with IEC 529
- Drop test:**
  - 500 mm (IEC 68-2-32)
- Shock resistance:**
  - 100 g, in accordance with IEC 68-2-27
- Vibration resistance:**
  - 10/55/10 Hz, 0.15 mm
  - test in accordance with IEC 68-2-6
- Self-extinguishing capability:**
  - Casing: UL94 V0
  - Jaws: UL94 V2
- Dimensions:**
  - 120 x 315 x 48 mm



- Weight:**
  - 1,200 g
- Colour:**
  - Dark grey casing with red jaws
- Output:**
  - 2 Safety sockets (4 mm)

### SAFETY SPECIFICATIONS

- Electrical safety:**
  - Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:
  - Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D32N</b> with operating manual | P01120051A |

# Current clamp for AC current

## Model D33N

D<sub>N</sub> series

|         |            |
|---------|------------|
| Current | 2,400 A AC |
| Ratio   | 3000:5     |
| Output  | 1.666 mA/A |

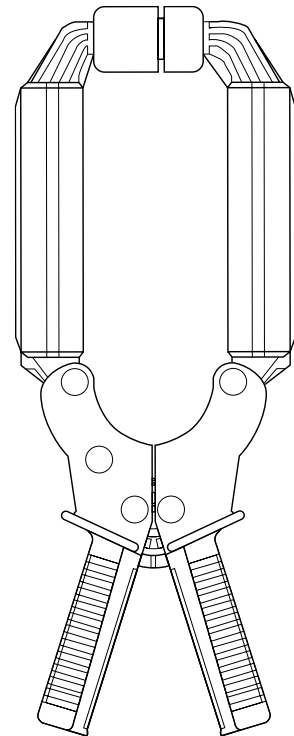
### ELECTRICAL SPECIFICATIONS

- **Current range:**  
1 A AC ... 2,400 A AC  
(3,000 A for temperature < 35 °C)
- **Current transformation ratio:**  
3000:5
- **Output signal:**  
1.666 mA/A AC (5 A for 3,000 A)
- **Accuracy and phase shift <sup>(1)</sup>:**

| Primary current                | 150 A | 600 A | 3,000 A |
|--------------------------------|-------|-------|---------|
| Accuracy in % of output signal | 3 %   | 1.5 % | 1 %     |
| Phase shift                    | 3°    | 1.5°  | 1°      |
- **Overload:**  
3600 A for 10 minutes
- **Accuracy:**  
In accordance with IEC 185-26-27, 5 VA class 1 from 48 Hz to 1,000 Hz
- **Bandwidth:**  
30 Hz to 5 kHz (in continuous use above 1 kHz, the max. measurement current is limited)
- **Ampere second product:**  
90 A.s
- **Load impedance:**  
< 1 Ω
- **Operating voltage:**  
600 V AC
- **Common mode voltage:**  
600 V AC
- **Influence of adjacent conductor:**  
0.005 A/A AC
- **Influence of conductor position in jaws:**  
1 % ± 0.1 A

### MECHANICAL SPECIFICATIONS

- **Operating temperature:**  
-10 °C to +50 °C
- **Storage temperature:**  
-25 °C to +80 °C
- **Influence of temperature:**  
< 0.1 % per 10 °K
- **Max. jaw opening:**  
90 mm
- **Max. jaw insertion capacity:**  
Cable: 64 mm  
Group of wires: 50 x 135 mm - 64 x 100 mm
- **Casing protection rating:**  
IP20 in accordance with IEC 529
- **Drop test:**  
500 mm (IEC 68-2-32)
- **Shock resistance:**  
100 g, in accordance with IEC 68-2-27
- **Vibration resistance:**  
10/55/10 Hz, 0.15 mm  
test in accordance with IEC 68-2-6
- **Self-extinguishing capability:**  
Casing: UL94 V0  
Jaws: UL94 V2
- **Dimensions:**  
120 x 315 x 48 mm
- **Weight:** 1,200 g
- **Colour:**  
Dark grey casing with red jaws
- **Output:**  
2 Safety sockets (4 mm)



### SAFETY SPECIFICATIONS

- **Electrical safety:**  
Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:  
- Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample, load impedance 0.2 Ω.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D33N</b> with operating manual | P01120052A |

# Current clamp for AC current

## Model D34N

D<sub>N</sub> series

| Current | 500 A AC | 1,000 A AC | 1,500 A AC |
|---------|----------|------------|------------|
| Ratio   | 500:5    | 1000:5     | 1500:5     |
| Output  | 10 mA/A  | 5 mA/A     | 3.33 mA/A  |

### ELECTRICAL SPECIFICATIONS

- Current range:**
  - 1 A AC .. 500 A AC
  - 1 A AC .. 1,000 A AC
  - 1 A AC .. 1,500 A AC
- Current transformation ratio:**
  - 500:5, 1000:5, 1500:5
- Output signal:**
  - 10 mA/A AC (5 A for 500 A)
  - 5 mA/A AC (5 A for 1,000 A)
  - 3.33 mA/A AC (5 A for 1,500 A)
- Accuracy and phase shift <sup>(1)</sup>:**

#### ■ 500 A calibre

| Primary current                | 25 A | 100 A | 500 A |
|--------------------------------|------|-------|-------|
| Accuracy in % of output signal | 5 %  | 3 %   | 3 %   |
| Phase shift                    | 6°   | 4°    | 4°    |

- Load impedance: 0.2 Ω
- Overload: 700 A for 10 minutes
- Ampere second product: 3.5 A.s
- Accuracy: in accordance with IEC 185-26-27, 5 VA class 3 from 48 Hz to 1,000 Hz

#### ■ 1,000 A calibre

| Primary current                | 50 A | 200 A | 1,000 A |
|--------------------------------|------|-------|---------|
| Accuracy in % of output signal | 3 %  | 1.5 % | 1 %     |
| Phase shift                    | 3°   | 1.5°  | 1°      |

- Load impedance: 0.1 Ω
- Overload: 1,400 A for 10 minutes
- Ampere second product: 18 A.s
- Accuracy: in accordance with IEC 185-26-27, 2.5 VA class 1 from 48 Hz to 1,000 Hz

#### ■ 1,500 A calibre

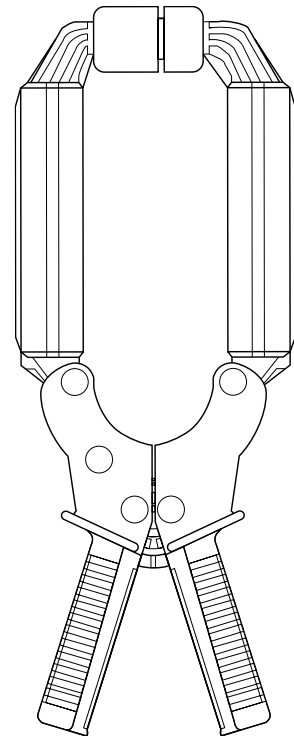
| Primary current                | 75 A  | 300 A  | 1,500 A |
|--------------------------------|-------|--------|---------|
| Accuracy in % of output signal | 1.5 % | 0.75 % | 0.5 %   |
| Phase shift                    | 1.5°  | 0.75°  | 0.5°    |

- Load impedance: 0.1 Ω
- Overload: 1800 A for 10 minutes
- Ampere second product: 40 A.s
- Accuracy: in accordance with IEC 185-26-27, 2.5 VA class 0.5 from 48 Hz to 1,000 Hz

- Bandwidth:**
  - 30 Hz to 1,500 Hz (in continuous use above 1.5 kHz the max. measurement current is limited)
- Load impedance:**
  - < 1 Ω max
- Operating voltage:**
  - 600 VAC
- Common mode voltage:**
  - 600 VAC
- Maximum output voltage (secondary open):**
  - Electronic protection limiting the voltage to 42 V peak max.
- Influence of adjacent conductor:**
  - 0.005 A/A AC
- Influence of conductor position in jaws:**
  - 1.5 % ± 0.2 A on the 500:5 ratio
  - 1 % ± 0.2 A on the 1000:5 ratio
  - 1 % ± 0.2 A on the 1500:5 ratio

### MECHANICAL SPECIFICATIONS

- Operating temperature:**
  - 10 °C to +50 °C
- Storage temperature:**
  - 25 °C to +80 °C
- Influence of temperature:**
  - < 0.1 % per 10 °K
- Max. jaw opening:**
  - 90 mm
- Max. jaw insertion capacity:**
  - Cable: 64 mm
  - Group of wires: 50 x 135 mm - 64 x 100 mm
- Casing protection rating:**
  - IP20 in accordance with IEC 529
- Drop test:**
  - 500 mm (IEC 68-2-32)
- Shock resistance:**
  - 100 g, in accordance with IEC 68-2-27
- Vibration resistance:**
  - 10/55/10 Hz, 0.15 mm
  - test in accordance with IEC 68-2-6
- Self-extinguishing capability:**
  - Casing: UL94 V0
  - Jaws: UL94 V2



- Dimensions:**
  - 120 x 315 x 48 mm
- Weight:**
  - 1,200 g
- Colour:**
  - Dark grey casing with red jaws
- Output:**
  - 2 Safety sockets (4 mm)

### SAFETY SPECIFICATIONS

- Electrical safety:**
  - Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:
  - Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D34N</b> with operating manual | P01120053A |

# Current clamp for AC current

## Model D35N

D<sub>N</sub> series

| Current | 1,000 A AC | 2,000 A AC | 2,400 A AC |
|---------|------------|------------|------------|
| Ratio   | 1000:5     | 2000:5     | 3000:5     |
| Output  | 5 mA/A     | 2.5 mA/A   | 1.666 mA/A |

### ELECTRICAL SPECIFICATIONS

- Current range:**
  - 1 A AC .. 1,000 A AC
  - 1 A AC .. 2,000 A AC
  - 1 A AC .. 2,400 A AC
  - (3,000 A for temperature < 35 °C)
- Current transformation ratio:**
  - 1000:5, 2000:5, 3000:5
- Output signal:**
  - 5 mA/A AC (5 A for 1,000 A)
  - 2.5 mA/A AC (5 A for 2,000 A)
  - 1.666 mA/A AC (5 A for 3,000 A)
- Accuracy and phase shift <sup>(1)</sup>:**

#### ■ 1,000 A calibre

| Primary current             | 50 A | 200 A | 1,000 A |
|-----------------------------|------|-------|---------|
| % Accuracy of output signal | 3 %  | 1.5 % | 1 %     |
| Phase shift                 | 3°   | 1.5°  | 1°      |

- Load impedance: 0.1 Ω
- Overload: 1,200 A for 10 minutes
- Ampere second product: 15 A.s
- Accuracy: in accordance with IEC 185-26-27, 2.5 VA, class 1 from 48 Hz to 1,000 Hz

#### ■ 2,000 A calibre

| Primary current             | 100 A | 400 A  | 2,000 A |
|-----------------------------|-------|--------|---------|
| % Accuracy of output signal | 1.5 % | 0.75 % | 0.5 %   |
| Phase shift                 | 1.5°  | 0.75°  | 0.5°    |

- Load impedance: 0.2 Ω
- Overload: 2,400 A for 10 minutes
- Ampere second product: 50 A.s
- Accuracy: in accordance with IEC 185-26-27, 5 VA, class 0.5 from 48 Hz to 1,000 Hz

#### ■ 3,000 A calibre

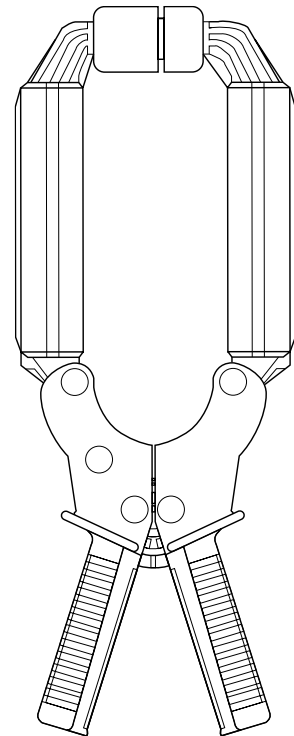
| Primary current             | 150 A | 600 A  | 3,000 A |
|-----------------------------|-------|--------|---------|
| % Accuracy of output signal | 1.5 % | 0.75 % | 0.5 %   |
| Phase shift                 | 1.5°  | 0.75°  | 0.5°    |

- Load impedance: 0.4 Ω
- Overload: 2,400 A for 10 minutes
- Ampere second product: 80 A.s
- Accuracy: in accordance with IEC 185-26-27, 10 VA class 0.5 from 48 Hz to 1,000 Hz

- Bandwidth:**
  - 30 Hz to 1,500 Hz (in continuous use above 1.5 kHz, the max. measurement current is limited)
- Load impedance:**
  - < 2 Ω max
- Operating voltage:**
  - 600 V AC
- Common mode voltage:**
  - 600 V AC
- Influence of adjacent conductor:**
  - 0.005 A/A AC
- Influence of conductor position in jaws:**
  - 1.5 % ± 0.2 A on the 1000:5 ratio
  - 1 % ± 0.2 A on the 2000:5 ratio
  - 1 % ± 0.2 A on the 3000:5 ratio

### MECHANICAL SPECIFICATIONS

- Operating temperature:**
  - 10 °C to +50 °C
- Storage temperature:**
  - 25 °C to +80 °C
- Influence of temperature:**
  - < 0.1 % per 10 °K
- Max. jaw opening:**
  - 90 mm
- Max. jaw insertion capacity:**
  - Cable: 64 mm
  - Group of wires: 50 x 135 mm - 64 x 100 mm
- Casing protection rating:**
  - IP20 in accordance with IEC 529
- Drop test:**
  - 500 mm (IEC 68-2-32)
- Shock resistance:**
  - 100 g, in accordance with IEC 68-2-27
- Vibration resistance:**
  - 10/55/10 Hz, 0.15 mm
  - test in accordance with IEC 68-2-6
- Self-extinguishing capability:**
  - Casing: UL94 V0
  - Jaws: UL94 V2
- Dimensions:**
  - 120 x 315 x 48 mm
- Weight:**
  - 1,200 g



- Colour:**
  - Dark grey casing with red jaws
- Output:**
  - Safety sockets (4 mm)

### SAFETY SPECIFICATIONS

- Electrical safety:**
  - Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:
  - Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D35N</b> with operating manual | P01120054A |

# Current clamp for AC current

## Model D36N

D<sub>N</sub> series

|         |            |
|---------|------------|
| Current | 3,000 A AC |
| Ratio   | 3000:3     |
| Output  | 1 mA/A     |

### ELECTRICAL SPECIFICATIONS

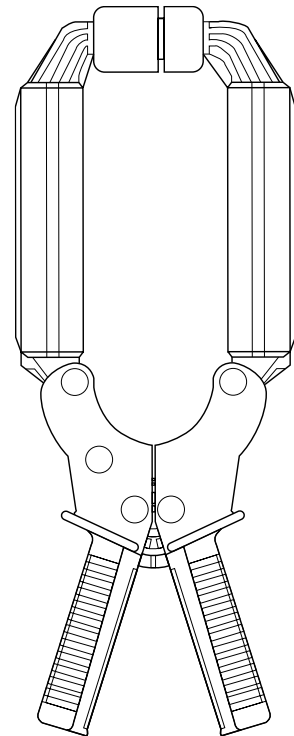
- **Current range:**  
1 A AC ... 2,400 A AC
- **Current transformation ratio:**  
3000:3
- **Output signal:**  
1 mA/A AC (3 A for 3,000 A)
- **Accuracy and phase shift<sup>(1)</sup>:**

| Primary current             | 150 A | 600 A  | 3,000 A |
|-----------------------------|-------|--------|---------|
| % Accuracy of output signal | 0.5 % | 0.75 % | 0.5 %   |
| Phase shift                 | 1.5°  | 0.75°  | 0.5°    |

- **Accuracy:**  
In accordance with IEC 185-26-27, 5 VA, class 0.5 from 48 Hz to 1,000 Hz
- **Bandwidth:**  
30 Hz to 5 kHz  
(beyond 400 Hz the output is limited in inverse proportion to the frequency)
- **Overload:**  
3600 A for 5 minutes
- **Maximum output voltage (secondary open):**  
Electronic protection circuit limiting voltage to 42 V peak max
- **Load impedance:**  
< 0.6 Ω
- **Operating voltage:**  
600 V AC
- **Common mode voltage:**  
600 V AC
- **Influence of adjacent conductor:**  
0.005 A/A AC
- **Influence of conductor position in jaws:**  
1 % ± 0.1 A

### MECHANICAL SPECIFICATIONS

- **Operating temperature:**  
-10 °C to +50 °C
- **Storage temperature:**  
-25 °C to +80 °C
- **Influence of temperature:**  
< 0.1 % per 10 °K
- **Max. jaw opening:**  
90 mm
- **Max. jaw insertion capacity:**  
Cable: 64 mm  
Group of wires: 50 x 135 mm - 64 x 100 mm
- **Casing protection rating:**  
IP20 in accordance with IEC 529
- **Drop test:**  
500 mm (IEC 68-2-32)
- **Shock resistance:**  
100 g, in accordance with IEC 68-2-27
- **Vibration resistance:**  
10/55/10 Hz, 0.15 mm  
test in accordance with IEC 68-2-6
- **Self-extinguishing capability:**  
Casing: UL94 V0  
Jaws: UL94 V2
- **Dimensions:**  
120 x 315 x 48 mm
- **Weight:**  
1,200 g
- **Colour:**  
Dark grey casing with red jaws
- **Output:**  
Safety jacks (4 mm)



### SAFETY SPECIFICATIONS

- **Electrical safety:**  
Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:  
- Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample, load impedance 0.55 Ω.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D36N</b> with operating manual | P01120055A |

# Current clamp for AC current

## Model D37N

D<sub>N</sub> series

| Current | 30 A AC  | 300 A AC | 3,000 A AC |
|---------|----------|----------|------------|
| Output  | 100 mV/A | 10 mV/A  | 1 mV/A     |

### ELECTRICAL SPECIFICATIONS

- Current range:**  
10 mA .. 30 A AC  
1 A AC .. 300 A AC  
1 A AC .. 2,000 A AC  
(2,800 A for temperature < 35 °C)
- Output signal:**  
100 mV/A AC (3 V for 30 A) 90 A peak  
10 mV/A AC (3 V for 300 A) 900 A peak  
1.666 mV/A AC (3 V for 3,000 A) 9,000 A peak
- Accuracy and phase shift <sup>(1)</sup>:**
  - 30 A calibre

| Primary current             | 1.5 A       | 6 A | 30 A |
|-----------------------------|-------------|-----|------|
| % Accuracy of output signal | 2 % ± 10 mV |     |      |
| Phase shift                 | 15°         | 7°  | 5°   |
  - 300 A calibre

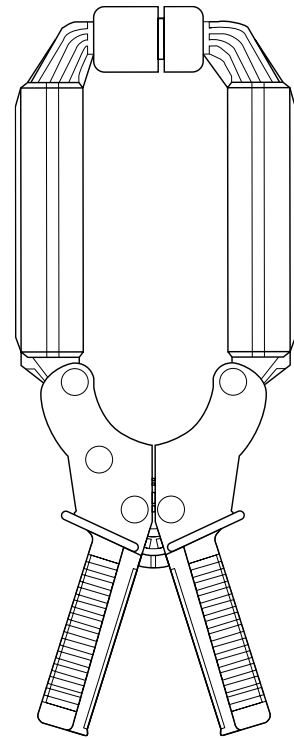
| Primary current             | 15 A       | 60 A | 300 A |
|-----------------------------|------------|------|-------|
| % Accuracy of output signal | 2 % ± 2 mV |      |       |
| Phase shift                 | 3°         | 1.5° | 1°    |
  - 3,000 A calibre

| Primary current             | 150 A        | 600 A | 3,000 A |
|-----------------------------|--------------|-------|---------|
| % Accuracy of output signal | 2 % ± 0.5 mV |       |         |
| Phase shift                 | 1.5°         | 1°    | 0.5°    |
- Overload:**  
3,200 A for 5 minutes
- Ampere second product:**  
100 A.s
- dV/dt:**  
100 mVAC/A AC: dV/dt = 400 mV/μs  
10 mVAC/A AC: dV/dt = 50 mV/μs  
1 mVAC/A AC: dV/dt = 5 mV/μs
- Bandwidth:**  
30 Hz to 5 kHz (on the 3,000 A range the max. measurement current is limited above 200 Hz)
- Load impedance:**  
≥ 1 MΩ
- Operating voltage:**  
600 VAC

- Common mode voltage:**  
600 VAC
- Influence of adjacent conductor:**  
0.005 A/A AC
- Influence of conductor position in jaws:**  
1.5 % of the reading
- Influence of frequency:**  
of 30 Hz to 5 kHz: ± 6 % on all calibres
- Influence of DC current:**  
0.04 % per A DC

### MECHANICAL SPECIFICATIONS

- Operating temperature:**  
-10 °C to +50 °C
- Storage temperature:**  
-25 °C to +80 °C
- Influence of temperature:**  
< 0.1 % per 10 °K
- Max. jaw opening:**  
90 mm
- Max. jaw insertion capacity:**  
Cable: 64 mm  
Group of wires: 50 x 135 mm - 64 x 100 mm
- Casing protection rating:**  
IP20 in accordance with IEC 529
- Drop test:**  
500 mm (IEC 68-2-32)
- Shock resistance:**  
100 g, in accordance with IEC 68-2-27
- Vibration resistance:**  
10/55/10 Hz, 0.15 mm  
test in accordance with IEC 68-2-6
- Self-extinguishing capability:**  
Casing: UL94 V0  
Jaws: UL94 V2
- Dimensions:**  
120 x 315 x 48 mm
- Weight:**  
1,200 g
- Colour:**  
Dark grey casing with red jaws
- Output:**  
Safety jacks (4 mm)



### SAFETY SPECIFICATIONS

- Electrical safety:**  
Double insulation or reinforced insulation between the primary and the secondary circuits and the outside casing in accordance with 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:  
- Electrical 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 ± 5 °K, 20 % to 75 % RH, 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D37N</b> with operating manual | P01120056A |

## Model D38N (insulated AC current probe)

| Current | 90 A peak | 900 A peak | 9,000 A peak |
|---------|-----------|------------|--------------|
| Output  | 10 mV/A   | 1 mV/A     | 0.1 mV/A     |

### DESCRIPTION

The D38N offers accurate AC current measurement and a voltage output in mV allowing direct readings on oscilloscopes. A switch with 3 positions on the handle can be used to select the ranges. The wide opening of the jaws means they can be used on cables and small busbars.

### ELECTRICAL SPECIFICATIONS

- Current calibres:**
  - 1 A AC .. 30 A AC (90 A peak)
  - 1 A AC .. 300 A AC (900 A peak)
  - 1 A AC .. 2,400 A AC (9,000 A peak)
  - (3,000 A for temperature < 35 °C)
- Output signal:**
  - 10 mV/A AC (3 V for 30 A)
  - 1 mV/A AC (3 V for 300 A)
  - 0.1 mV/A AC (3 V for 3,000 A)

- Accuracy and phase shift <sup>(1)</sup>:**

- 30 A calibre

| Primary current             | 1.5 A      | 6 A   | 30 A | 36 A |
|-----------------------------|------------|-------|------|------|
| % Accuracy of output signal | 2 % ± 1 mV |       |      |      |
| Phase shift                 | ≤ 20°      | ≤ 10° | ≤ 5° | ≤ 5° |

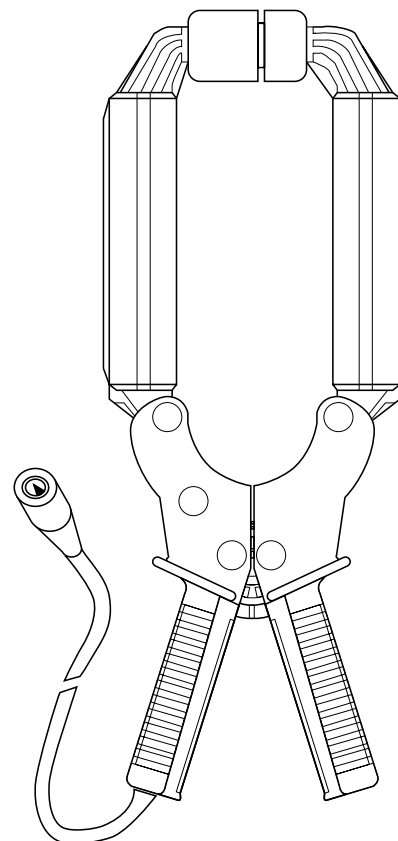
- 300 A calibre

| Primary current             | 15 A         | 60 A   | 300 A | 360 A |
|-----------------------------|--------------|--------|-------|-------|
| % Accuracy of output signal | 2 % ± 0.5 mV |        |       |       |
| Phase shift                 | ≤ 3°         | ≤ 1.5° | ≤ 1°  | ≤ 1°  |

- 3,000 A calibre

| Primary current             | 150 A        | 600 A  | 3,000 A | 3600 A |
|-----------------------------|--------------|--------|---------|--------|
| % Accuracy of output signal | 2 % ± 0.2 mV |        |         |        |
| Phase shift                 | ≤ 3°         | ≤ 1.5° | ≤ 1°    | ≤ 1°   |

- Bandwidth:**
  - 10 Hz to 50 kHz (depending on current)
- Rise/fall time from 10 % to 90 %:**
  - 4 µs
- 10 % delay time:**
  - 0.3 µs
- Ampere second product:**
  - 30 A calibre: 30 A.s
  - 300 A calibre: 125 A.s
  - 3,000 A calibre: 180 A.s
- Insertion impedance (at 400 Hz / 10 kHz):**
  - 30 A calibre: < 0.1 mΩ / < 1 mΩ
  - 300 A calibre: < 0.1 mΩ / < 0.5 mΩ
  - 3,000 A calibre: < 0.1 mΩ / < 0.4 mΩ
- Maximum currents:**
  - I < 2,400 A permanent
  - 2,400 A .. 2,800 A for 10 minutes and then 30 minutes shutdown
  - 2,800 A .. 4,000 A for 5 minutes and then 30 minutes shutdown
- Output impedance:**
  - 30 A calibre: ≤ 130 Ω ± 15 %
  - 300 A calibre: ≤ 140 Ω ± 15 %
  - 3,000 A calibre: ≤ 140 Ω ± 15 %
- Influence of temperature:**
  - ≤ 0.2 % of output signal par 10 K
- Influence of adjacent conductor:**
  - ≤ 5 mA/A at 50 Hz
- Influence of DC current < 10 % of rated calibre superimposed on the rated current:**
  - 0.05 % / A DC
- Influence of conductor position in jaws:**
  - ≤ 1 % + 0.1 A at 50/60 Hz
- Influence of frequency <sup>(2)</sup>:**
  - 30 A calibre: < 1 dB from 10 Hz .. 10 kHz
  - 300 A calibre: < 1 dB from 10 Hz .. 10 kHz
  - 3,000 A calibre: < 1 dB from 10 Hz .. 10 kHz
- Max. jaw opening:**
  - 90 mm
- Clamping capacity:**
  - Cable: Ø max 64 mm
  - Busbars:
    - 5 busbars from 125 x 5 mm
    - 3 busbars from 100 x 10 mm
    - (busbars spaced by their thickness)
- Output:**
  - Via 2 m coaxial cable terminated by insulated BNC plug
- Dimensions:**
  - 310 x 120 x 48 mm
- Weight:**
  - 1,200 g
- Operating temperature:**
  - 10 °C to +50 °C
- Storage temperature:**
  - 25 °C to +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 20 (IEC 529)



### MECHANICAL SPECIFICATIONS

- Drop test:**
  - 0.5 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:**
  - 10/55/10 Hz, 0.15 mm (IEC 68-2-6)
- Self-extinguishing capability:**
  - Handles: UL94 V0
  - Jaws: UL94 V2
- Colours:**
  - Dark grey handles with red jaws

### 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

# Oscilloscope clamp for AC current

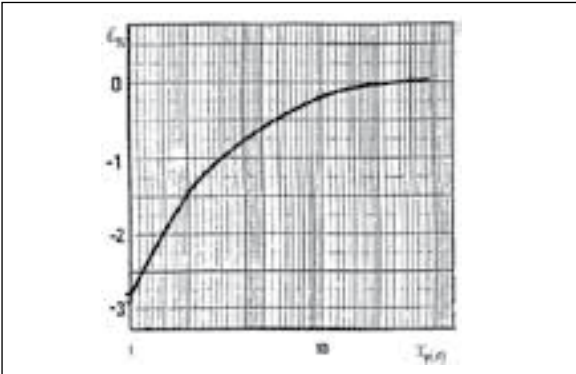
## Model D38N (insulated AC current probe)

D<sub>N</sub> series

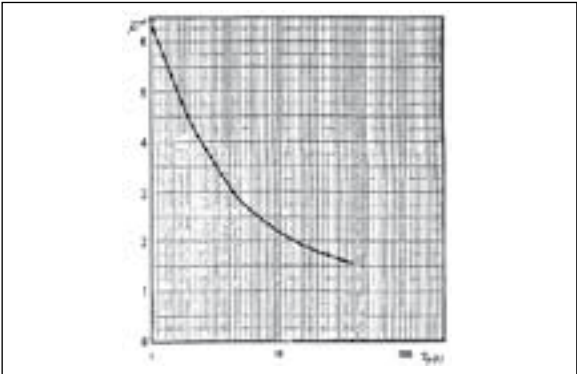
### CURVES AT 50 Hz

#### 30 A calibre

Error on measurement

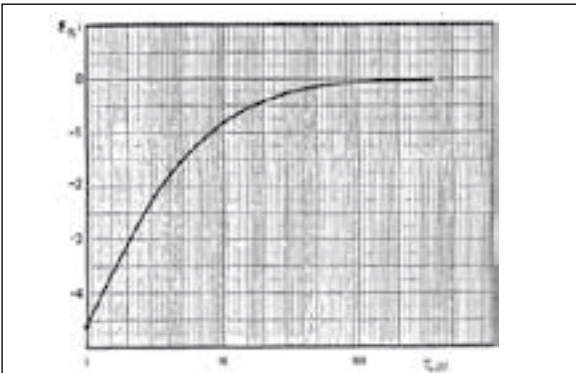


Phase shift

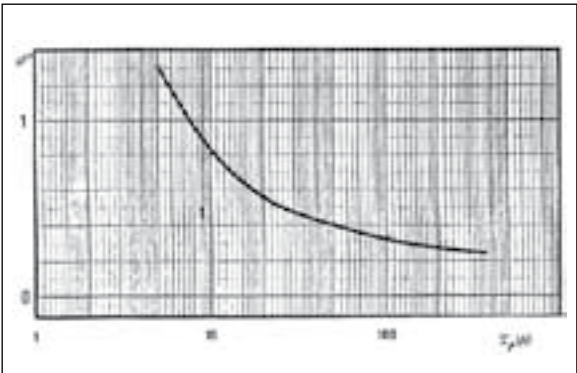


#### 300 A calibre

Error on measurement

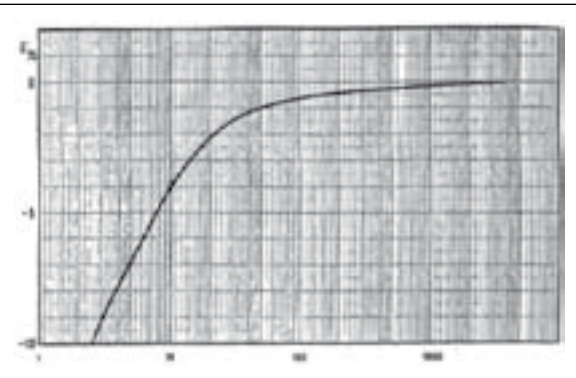


Phase shift

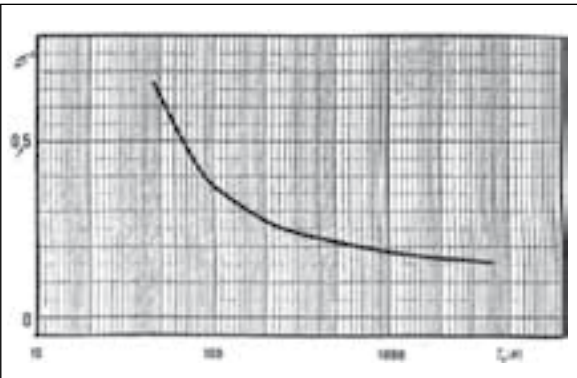


#### 3,000 A calibre

Error on measurement



Phase shift



# Oscilloscope clamp for AC current

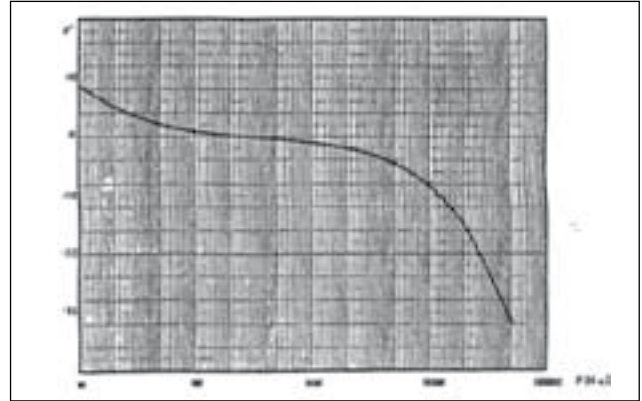
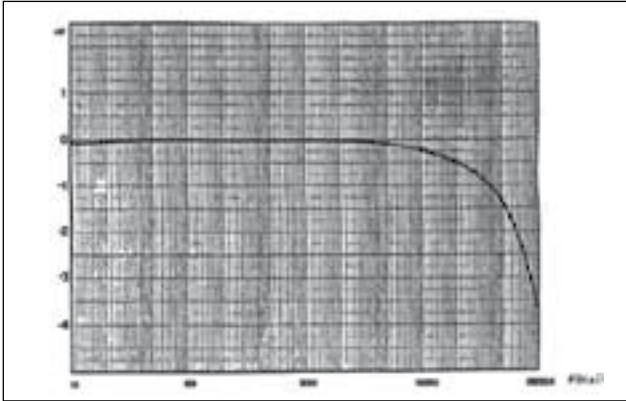
## Model D38N (insulated AC current probe)

D<sub>N</sub> series

### FREQUENCY RESPONSE

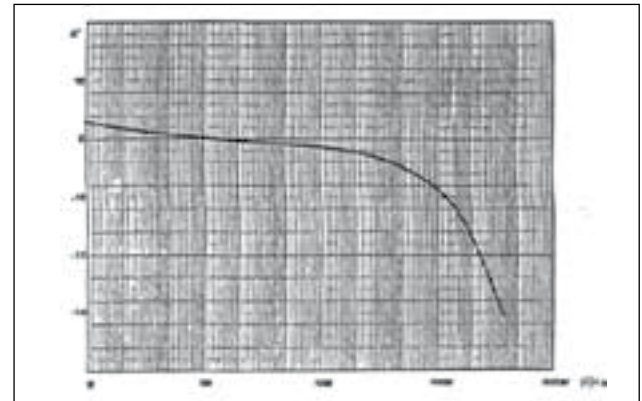
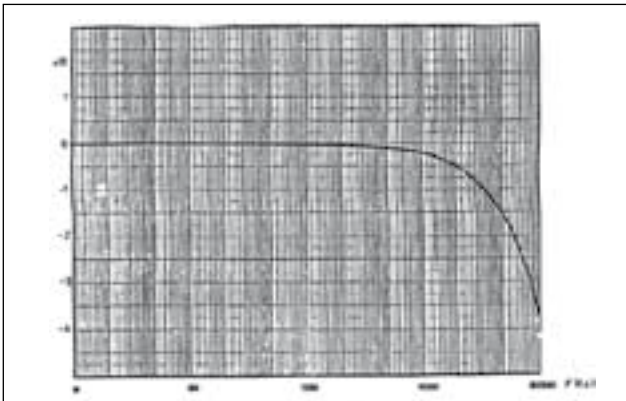
30 A calibre

I = 10 A



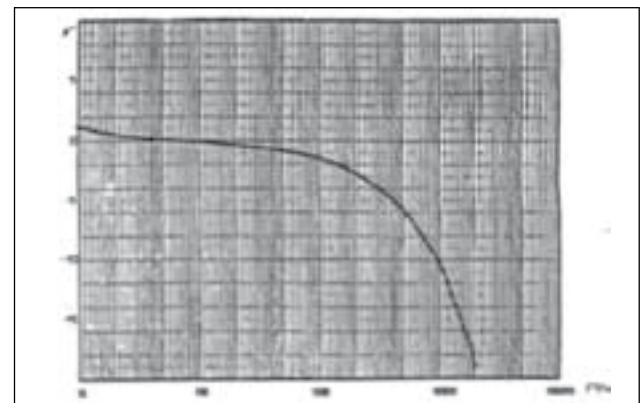
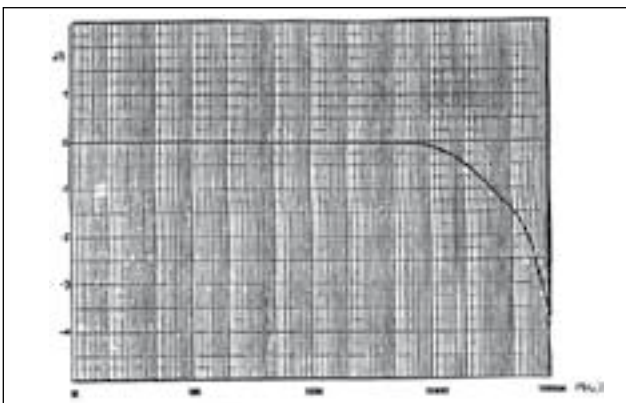
300 A calibre

I = 10 A



3,000 A calibre

I = 100 A



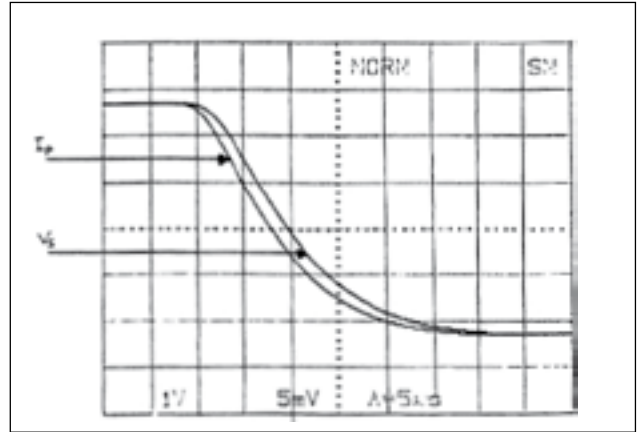
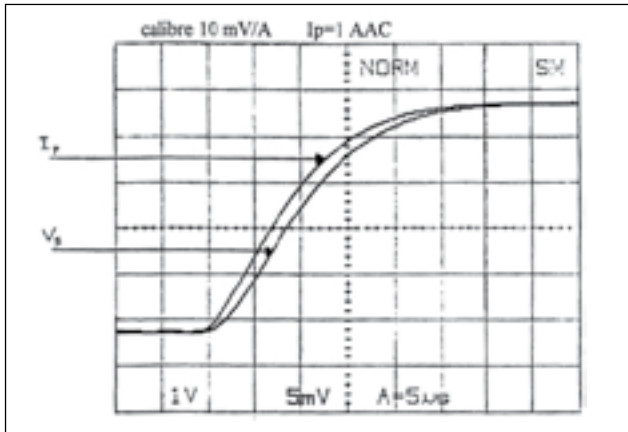
# Oscilloscope clamp for AC current

## Model D38N (insulated AC current probe)

D<sub>N</sub> series

### RESPONSE TO A SQUARE SIGNAL ( $I_p = 1$ A)

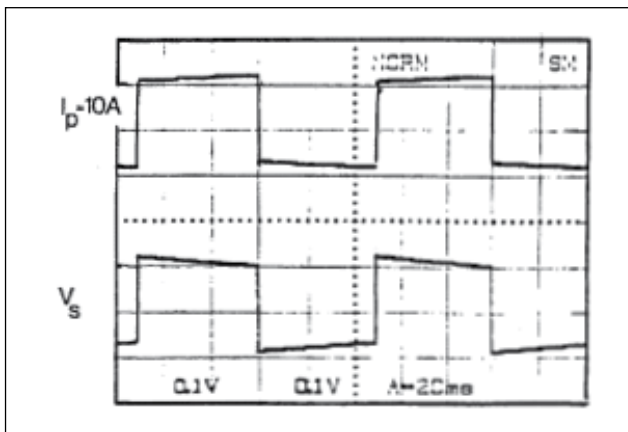
30 A calibre



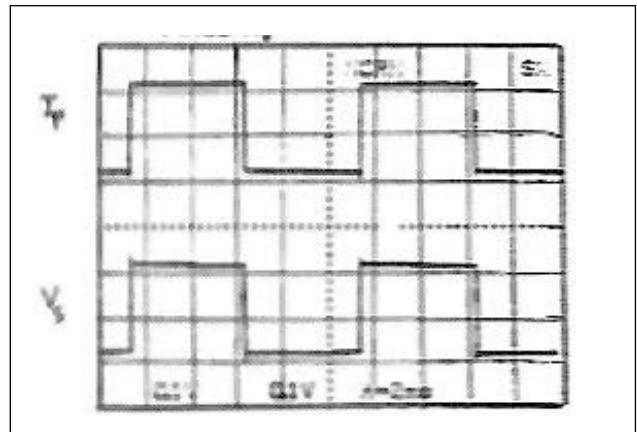
### RESPONSE TO A SQUARE SIGNAL ( $I_p = 10$ A)

30 A calibre

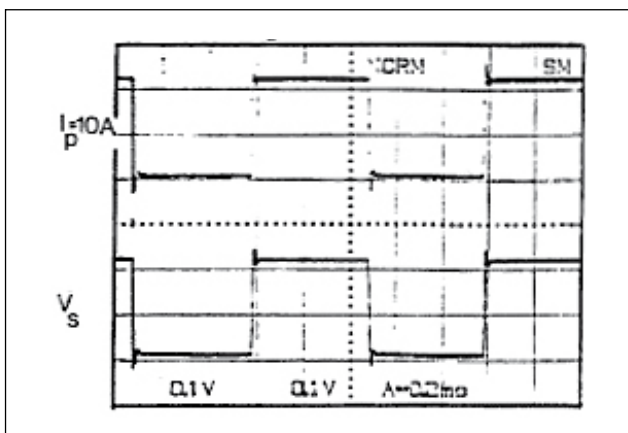
10 Hz



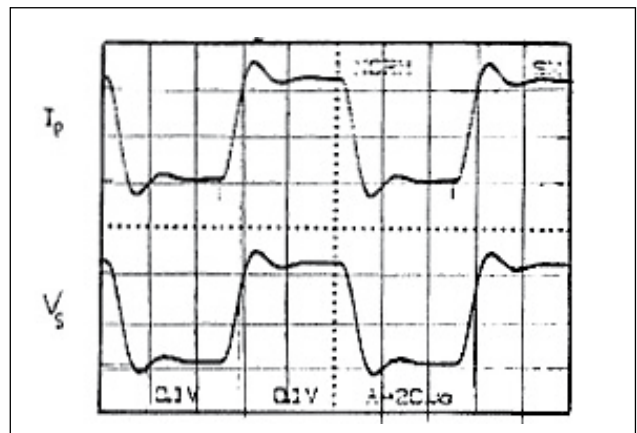
100 Hz



1 KHz



10 kHz

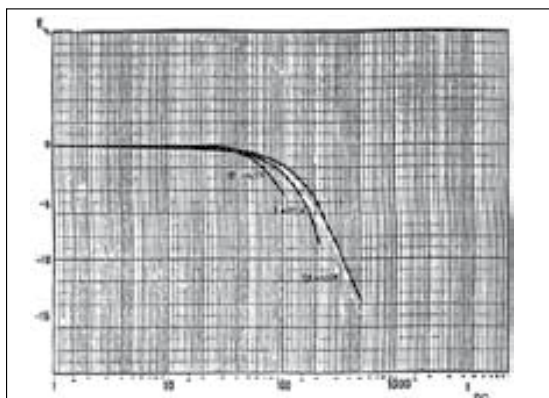


## Oscilloscope clamp for AC current

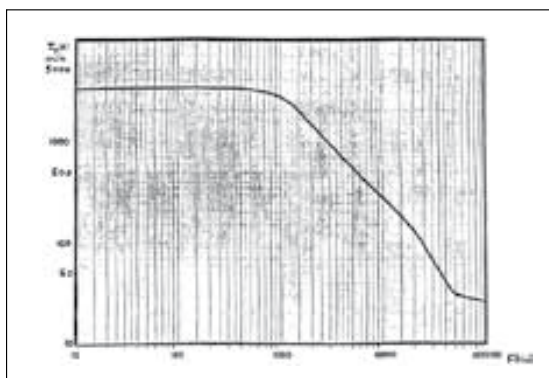
**D<sub>N</sub> series**

### Model D38N (insulated AC current probe)

#### INFLUENCE OF DC CURRENT SUPERIMPOSED ON THE SIGNAL



#### MAXIMUM CURRENT ACCORDING TO FREQUENCY



- (1) Conditions of reference: 23 °C ± 3 °K, 20 % to 75 % RH, sinusoidal signal from frequency of 48 Hz to 65 Hz, external magnetic field < 40 A/m, no DC component, no external conductor with circulating current, conductor centred for measurement, load impedance > 1 MΩ / < 47 pF.  
(2) Out of reference domain.

| To order                                                 | Reference  |
|----------------------------------------------------------|------------|
| AC current clamp model <b>D38N</b> with operating manual | P01120057A |