

# Flexible probe for AC current

## Model MA100 30-300/3

MiniFLEX series

Current	30 AAC	300 AAC
Output	100 mV/A	10 mV/A

### ■ Description

The model MA100 MiniFLEX sensor is a flexible sensor comprising an active part (Rogowski coil) linked to a casing containing electronics.

Unlike a current clamp with magnetic circuits, the MiniFLEX models are flexible and are not subject to magnetic saturation constraints, so they offer excellent linearity, low phase shift and a large dynamic range for measurement (up to several kA) while remaining easy to use.

The sensors' flexibility makes it simple to clamp and measure any conductor, whatever its type (cable, busbar, strand, etc. and accessibility).

The click-lock system for opening and closing the coil is specially designed for use with safety gloves.

Depending on the model, the MA100 can be connected to the AC voltage input of:

- any multimeter with Ø 4 mm female plugs with 19 mm spacing
- any measurement instrument equipped with BNC connection technology.



### ■ Specifications for current measurement <sup>(1)</sup>

Calibre	30 A	300 A
Measurement range in use	0.5...30 AAC	0.5...300 AAC
Specified measurement range <sup>(2)</sup>	5...30 AAC	5...300 AAC
Output/input ratio	100 mV/A	10 mV/A
Bandwidth at -3 dB	2 Hz...20 kHz	
Accuracy in % of output signal	≤ 1 %	
Phase shift at 50 Hz	≤ 1.5°	
Residual current (noise) at I = 0	≤ 0.5 A rms	
Output impedance	1 kΩ	

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### ■ Electrical specifications <sup>(1)</sup>

**Operating voltage:**

600 V rms (Cat. IV)  
1000 V rms (Cat. III)

**Battery:**

9 V alkaline battery (NEDA 1604A, IEC 6LR61)

**Battery life:**

100 hours typical

**Typical consumption:**

3.6 mA typical

**Battery level indication:**

Green LED when > 7.0 V approx.

**Influence of battery voltage:**

≤ 0.1 % from 9 V to 7 V

**Influence of temperature:**

≤ 0.2 % / 10 °K

**Influence of humidity:**

≤ 0.3 % from 10 % to 90 % RH without condensation

**Influence of conductor position in the sensor <sup>(5)</sup>:**

≤ 2.5 %

**Influence of sensor deformation <sup>(3)</sup>:**

≤ 1.5 %

**Influence of an adjacent conductor with circulating AC current <sup>(4)</sup>:**

≤ 1 % or 40 dB

**Common mode rejection:**

- between enclosure and secondary:

≤ 65 dB

- between sensor and secondary: ≤ 88 dB

**Influence of the measurement instrument's impedance Z:**

0.1 % / Z (in MΩ)

### ■ Mechanical specifications

**Clamping capacity:**

Model 170 mm: Ø max 45 mm

**Operating temperature:**

-10 °C to +55 °C

**Storage temperature:**

-40 °C to +70 °C

**Max. temperature of clamped conductor (measured):**

≤ 90 °C

**Relative humidity for operation:**

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

**Operating altitude:**

0 to 2,000 m

**Storage altitude:**

≤ 12,000 m

**Casing protection rating (leakproofing):**

Casing: IP50

Sensor: IP50

according to EN 60529/A1 Ed. 06/2000

**Shock resistance:**

IK04 according to EN 50102 Ed. 1995

**Self-extinguishing capability:**

Casing: UL94-V2

Sensor: UL94 V0

**Dimensions:**

Casing: 140 x 64 x 28 mm

Connector lead: 2 m (connects sensor to casing)

Ø of sensor: 5.5 mm approx.

Connection cable Ø: 3 mm approx.

**Colours:**

Sensor: red

Sensor closing system: dark grey

Sensor locking tab: yellow

Casing: dark grey

**Output:**

Depending on model:

- 2 x Ø 4 mm safety plugs with 19 mm spacing or

- Coaxial cable 40 cm long, terminated by an insulated BNC plug

### ■ Safety specifications

**Electrical safety:**

Class II equipment with double or reinforced insulation between the primary and the secondary (winding connected to the connection cable) as per EN 61010-1 and 61010-2-032:

- 1000 V Cat. III, pollution degree 2

- 600 V Cat. IV, pollution degree 2

- Type-B sensor

- 600 V Cat. III between the terminals or between the BNC output (depending on model) and the external enclosure of the casing

**Electromagnetic compatibility (EMC):**

Complies with the IEC 61326 (Ed. 1997) + A1 (Ed. 1998)

- Adequate immunity to disturbances for industrial environments

- Adequate immunity to disturbances for residential environments

(1) Conditions of reference: 23 °C ± 5 °K, 20 % to 75 % RH

Battery voltage: 9 V ± 0.5 V

Continuous external DC magnetic field (earth field) < 40 A/m

Absence of external AC magnetic field

External electrical field < 1 V/m

Position of conductor measured: centred in the measurement coil

Shape of measurement coil: quasi-circular

Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ

Frequency and form of signal measured: 40 to 400 Hz sinusoidal.

(2) Measurement range for the specifications indicated in this document

(3) Any position, Ø of conductor measured ≥ 5 mm

(4) Adjacent conductor 1 cm from sensor, ≤ 2 % or 34 dB near click-lock system

(5) ≤ 6 % near click-lock system

To order	Reference
MiniFLEX MA100 30-300 A / 3 V, length 170 mm, output via 2 x Ø 4 mm safety plugs with 19 mm spacing, with operating manual and battery	P01120560
MiniFLEX MA100 30-300 A / 3 V, length 170 mm, insulated BNC output with BNC Ø 4 mm banana adapter, with operating manual and battery	P01120563