

Datenblatt

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K series

The K series is a new product range with exceptional measurement capabilities.

Extremely compact in design, these “micro-probes” are designed for highly accurate measurement of very low currents.

Their small dimensions and shape make them ideal for probing into tight spaces where access is limited, as is the case on most switchboards, 4-20 A process loops or vehicle wiring looms for example.

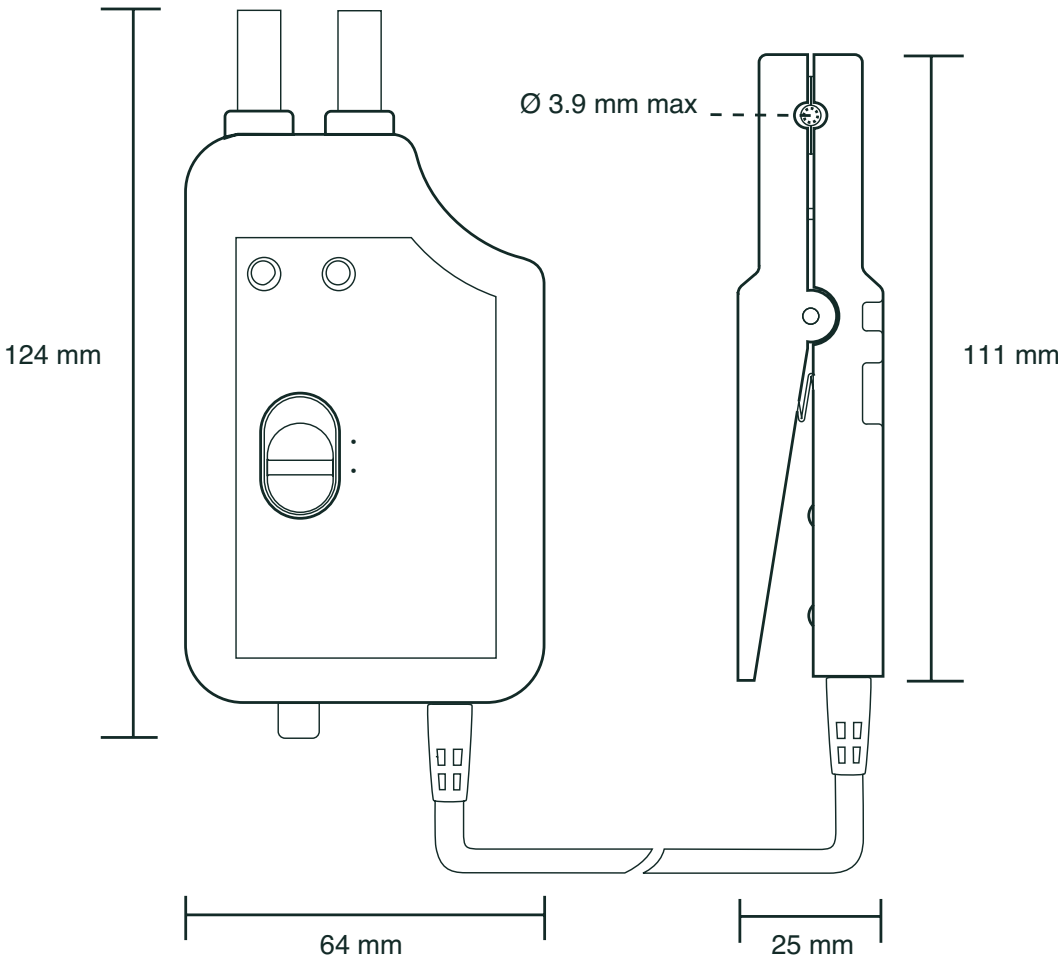
These “K” series current probes make excellent work companions for multimeters and any other instrument able to make use of their high sensitivity, dynamic range and ability to indicate the shapes of signals and waveforms.

They give an AC+DC output signal that is proportional to the measured current, without needing to change the range or filter the signal. RMS measurements are possible with DC+AC components.

There are two different types of K series current probes available.

Model K1 gives a 1 mV/mA output and lends itself to a variety of different applications, oriented towards low-current measurement.

Model K2 has a greater level of sensitivity with its 10 mV/mA output.



AC/DC current probe

Model K1

K series

Current	4500 mA DC 3000 mA AC
Output	1 mV/mA

Description

The K1 model measures currents as low as 100 μ A AC or DC.
The clamp provides a proportional output signal enabling direct readings on multimeters.

Electrical specifications

Current calibres:

1 mA DC... \pm 4.5 A DC
1 mA rms...3 A rms (sinusoidal)
1 mA...4.5 A peak, square and steps

Output (output voltage): 1 mV/mA

Resolution:

DC: 50 μ A typical
AC: 100 μ A typical

Accuracy ⁽¹⁾:

DC current

Primary current	1 mA...10 mA	10 mA...120 mA	120 mA...4500 mA
Accuracy in % of output signal	2 % \pm 0.2 mV	2 % \pm 0.1 mV	1 %

AC current from 45 Hz to 65 Hz

Primary current	1 mA...10 mA	10 mA...120 mA	120 mA...3000 mA
Accuracy in % of output signal	3 % \pm 0.3 mV	3 % \pm 0.1 mV	1 %

Frequency response:

DC to 2kHz (to -3 dB)

Load impedance:

\geq 1 M Ω and \leq 100 pF

Output noise:

< 100 μ V, DC to 3 kHz

Output impedance:

220 Ω

Inductance of clamp:

< 1 μ H

Rise time:

< 200 μ s, 10 % to 90 %

Fall time:

< 200 μ s, 90 % to 10 %

Influence of adjacent conductors

(50 Hz at 23 mm from the clamp):
< 100 μ A/A

Influence of earth field:

< 120 μ A

Battery:

Alkaline 9 V, NEDA 1604,
6LR61 or IEC 6 LF22

Battery level indication:

Green LED when battery voltage > 6.5 V

Battery charge life:

Approximately 20 hours

Overload indication:

Red LED indicating momentary or continuous overload

Max. current:

200 A AC or DC with current limitation according to with frequency, above 400 Hz

Mechanical specifications

Operating temperature:

-10 $^{\circ}$ C to +55 $^{\circ}$ C

Storage temperature:

-40 $^{\circ}$ C to +80 $^{\circ}$ C

Influence of temperature:

< 1000 ppm/ $^{\circ}$ K or 1 %/10 $^{\circ}$ C

Humidity:

< 95 % for < 35 $^{\circ}$ C, 75 % at +55 $^{\circ}$ C

Operating altitude:

0 to 2,000 m

Adjustment of DC zero:

approximately \pm 25 mA by turning the button on the bottom of the housing

Max. jaw insertion capacity:

\varnothing 3.9 mm

Protection rating:

IP 40 in accordance with IEC 529

Drop test:

1.0 m in accordance with IEC 68-2-32

Impacts:

100 g in accordance with IEC 68-2-27

Vibration:

in accordance with IEC 68-2-6

Frequency range:

5 to 15 Hz, amplitude: 1.5 mm
15 to 25 Hz: amplitude: 1 mm
25 to 55 Hz: amplitude: 0.25 mm

Dimensions:

Electronic module: 124 x 64 x 28 mm
Probe: 111 x 15 x 25 mm

Cable length:

1.5 m

Weight:

250 g

Colour:

Dark grey

Output:

Two 4 mm safety terminals 19 mm apart.

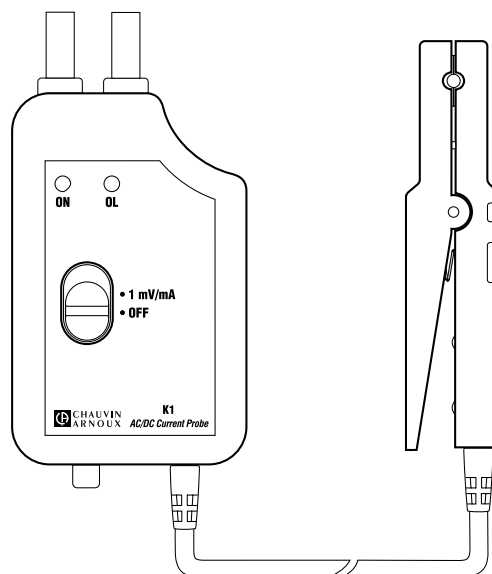
Safety specifications

Operating voltage:

300 V in accordance with IEC 1010-1 Cat. II

Electromagnetic compatibility:

Immunity (EN 50082-1): class A
DC: 15 mV for 0
AC (60 Hz): 2 dB from 10 mA...4.5 A
Emissivity (EN 50081-1): negligible



(1) Conditions of reference: 23 $^{\circ}$ C \pm 3 $^{\circ}$ C, 20 % to 75 % RH, batteries 9 V \pm 0.1 V, earth's magnetic field < 40 A/m, no AC field, DC or sinusoidal current from 45 Hz to 65 Hz

To order	Reference
AC/DC current clamp model K1 in carrying case with battery and user's manual	P01120067A

AC/DC current probe

Model K2

K series

Current	450 mA DC 300 mA AC
Output	10 mV/mA

Description

The K2 model measures currents as low as 100 μ A AC or DC.
The probe has a proportional output for direct readings on multimeters.

Electrical specifications

Current calibres:

0.1 mA DC... \pm 450 mA DC
0.1 mA rms...300 mA rms (sinusoidal)
0.1 mA peak...450 mA peak, square signal and steps

Output (output voltage):

10 mV/mA

Resolution:

DC: 50 μ A typical
AC: 100 μ A typical

Accuracy ⁽¹⁾:

DC current

Primary current	0.1 mA...1 mA	1 mA...12 mA	12 mA...450 mA
Accuracy in % of output signal	3 % \pm 2 mV	2 % \pm 2 mV	1 %

AC current from 45 Hz to 65 Hz

Primary current	0.1 mA...1 mA	1 mA...12 mA	12 mA...300 mA
Accuracy in % of output signal	3 % \pm 0.5 mV	2 % \pm 0.5 mV	1 %

Frequency response:

DC to 1.5 kHz (to -3 dB)

Load impedance:

\geq 1 M Ω and \leq 100 pF

Output noise:

< 100 μ V DC to 1.5 kHz

Output impedance:

200 Ω

Inductance of clamp:

< 1 μ H

Rise time:

< 200 μ s, 10 % to 90 %

Fall time:

< 200 μ s, 90 % to 10 %

Influence of adjacent conductors:

(50 Hz at 23 mm from the clamp):
< 100 μ A /A

Influence of earth field:

< 120 μ A, 0...max

Battery:

Alkaline 9 V, NEDA 1604, 6LR61
or IEC 6 LF22

Battery level indication:

Green LED when battery voltage > 6.5 V

Battery charge life:

Approximately 20 hours

Overload indication:

Red LED indicating momentary or continuous overload

Max. current:

100 A AC rms or DC with current limitation
according to with frequency, above 800 Hz

Mechanical specifications

Operating temperature:

-10 $^{\circ}$ C to +55 $^{\circ}$ C

Storage temperature:

-40 $^{\circ}$ C to +80 $^{\circ}$ C

Influence of temperature:

< 500 ppm/ $^{\circ}$ K or 0.5 % / 10 $^{\circ}$ C

Humidity:

< 95 % at < 35 $^{\circ}$ C, 75 % at 55 $^{\circ}$ C

Operating altitude:

0 to 2,000 m

Adjustment of DC zero:

approximately \pm 15 mA by turning the button
on the bottom of the housing (10 turns)

Max. jaw insertion capacity:

\varnothing 3.9 mm

Protection rating:

IP40 in accordance with IEC 529

Drop test:

1.0 m in accordance with IEC 68-2-32

Impacts:

100 g in accordance with IEC 68-2-27

Vibration:

in accordance with IEC 68-2-6

Frequency range:

5 Hz...15 Hz, amplitude: 1.5 mm
15 Hz...25 Hz: amplitude: 1 mm
25 Hz...55 Hz: amplitude: 0.25 mm

Dimensions (electronic module):

124 x 64 x 28 mm

Dimension (probe):

111 x 15 x 25 mm

Cable length:

1.5 m

Weight:

250 g

Colour:

Dark grey

Output:

Two 4 mm safety terminals 19 mm apart.
(standard)

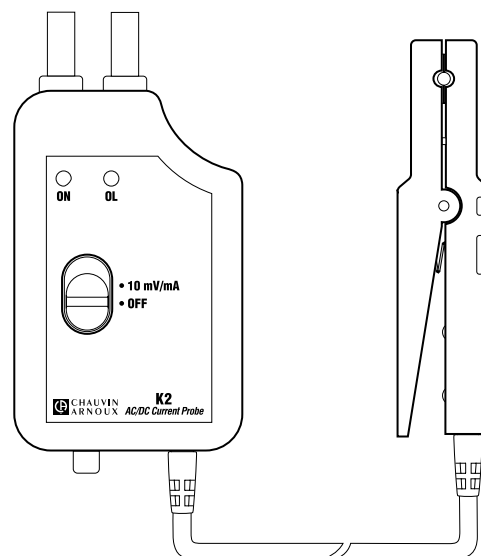
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300 V in accordance with IEC 1010-1 Cat. II

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To order	Reference
AC/DC current clamp model K2 in carrying case with battery and user's manual	P01120074A