

Current probes for oscilloscopes



> Display currents in complete safety
Without even opening the circuit!

- Voltage output with BNC connector
- Safety: IEC 61010-2-32 Cat. III, 600 V
- Capture signals by simply clamping the conductor



■ C160 ■ D38N ■ MN60 ■ Y7N ■ E3N ■ PAC12 ■ PAC22

	■ C160	■ D38N	■ MN60	■ Y7N	■ E3N	■ PAC12	■ PAC22
Reference	> P01.1203.08	> P01.1200.57A	> P01.1204.09	> P01.1200.75	> P01.1200.43A	> P01.1200.72	> P01.1200.73
Measurement range	0.1 to 300 A peak 0.1 to 2000 A peak	1 to 90 A peak 1 to 900 A peak 1 to 9000 A peak	0.1 to 60 A peak AC 0.5 to 600 A peak AC	1A to 1200A peak	0.05 to 10 A peak 1 to 100 A peak	0.2 to 60 A cpeak 0.4 to 60 A DC 0.5 to 600 A peak 0.5 to 600 A DC	0.2 to 150 A peak 0.4 to 150 A DC 0.5 to 1400 A peak 0.5 to 1400 A DC
Transformation ratio	10 A / 1 V 100 A / 1 V 1 kA / 1 V	1 A / 10 mV 1 A / 1 mV 1 A / 0.1 mV	1 A / 100 mV 1 A / 10 mV	1A / 1 mV	1 A / 100 mV 1 A / 10 mV	1 A / 10 mV 1 A / 10 mV	
Bandwidth	10 Hz to 100 kHz	30 Hz to 50 kHz	40 Hz to 40 kHz	5 Hz to 10 kHz	DC - 100 kHz	DC - 10 kHz	
Accuracy	3%, 2%, 1%	≤2%	≤2% and ≤1.5%	≤2%	3% 4%	≤1.5% ≤2%	≤1.5% ≤2%
Clamping diameter	52 mm	64 x 150 mm	20 mm	max 30 mm or 30 x 63 mm	11.8 mm	30 mm	39 mm
Input			AC			AC/DC	
Cable length	2 m	2 m	2 m	2 m	2 m	1.5 m	2 m
Dimensions (overall)	216 x 111 x 45 mm	310 x 120 x 48 mm	135 x 51 x 30 mm	213 x 66 x 34 mm	231 x 67 x 36 mm	224 x 97 x 44 mm	236.5 x 97 x 44 mm
Weight	550 g	1200 g	180 g	420 g	330 g	440 g	520 g
Power supply						1 battery 9 V	

To choose a model: see page 46
Technical specifications: see table pages 48 and 49

Analogue testers

■ C.A 400 series*

- > Economical and robust, for teaching purposes
- > Electrical safety as per IEC 61010-1
- Resistant casing with detachable stand
- Single switch
- Safety sockets
- Double insulation



	■ C.A 401	■ C.A 402	■ C.A 403	■ C.A 404	■ C.A 405	■ C.A 406
Reference also available in kit	> P01.1703.01	> P01.1703.02	> P01.1703.03	> P01.1703.04	> P01.1703.05	> P01.1705.01 > P01.1707.01
Function	AC / DC ammeter	AC / DC voltmeter	zero galvanometer 2 black scales (0 to 30 and 0 to 100)	single-phase AC / DC wattmeter	single and three-phase AC/DC wattmeter	multimeter 6 scales: black, green and red
Switchgear	magneto-electric rectifying		magneto-electric	ferrodynamic		magneto-electric
Ranges Voltage	1 cal. DC: 100 mV for shunts	8 cal. DC: 100 mV to 1000 V 6 cal. AC: 3 V to 1000 V	1 cal. DC: 100 mV for shunts	4 cal.: 60 V to 480 V	single-phase 6 cal.: 60 V to 480 V balanced three-phase 4 cal.: 60 V/3 to 240 V/3	8 cal. DC: 100 mV to 1000 V 6 cal. AC: 3 V to 1000 V
Intensity	11 cal. DC: 100 µA to 10 A 7 cal. AC: 10 mA to 10 A		2 cal. DC: 30 µA, 3 mA	2 cal.: 0.5 A; 1 A	1 cal. 5 A	4 cal. DC: 1 mA to 1 A + 1 cal. 50 µA 5 cal. AC: 0.3 mA to 3 A + 1 cal. 150 µA
Resistance						3 cal.: 0.5 Ω - 1 kΩ to 1 MΩ
Basic accuracy	2% DC 2.5% AC		1.5% DC	1% AC	2.5% DC, 1% AC single- and 2% AC three-	1.5% DC
Operating frequency	45 to 400 Hz	20 to 400 Hz		0 to 500 Hz	15 to 500 Hz	20 to 400 Hz
Fuses	1A HPC and 10A HPC	internal resistance: 20 kΩ/DC; 6.32 kΩ/AC	315 mA HPC	1.25 A HPC	6.3 A HPC	3.15 A HPC and 160 mA HPC int. res.: 20 kΩ/VDC; 6.32 kΩ/VAC
Dimensions	165 x 105 x 50 mm					
Weight	450 g					
State of delivery	with test probe leads and 1.5 V battery (LR6)					

*Also see page 28

Resistances and capacities

Decades boxes and Shunts

Electrical safety as per IEC 61010-1

■ Resistances boxes	
0.1 to 1 Ω	> P03.1975.21A
1 to 10 Ω	> P03.1975.22A
10 to 100 Ω	> P03.1975.23A
100 to 1000 Ω	> P03.1975.24A
1 to 10 kΩ	> P03.1975.25A
10 to 100 kΩ	> P03.1975.26A
100 to 1000 kΩ	> P03.1975.27A
1 to 10 MΩ	> P03.1975.28A
BR 04 :	
4 decades 1 Ω to 10 kΩ	> P01.1974.01
BR 05 :	
5 decades 1 Ω to 100 kΩ	> P01.1974.02
BR 06 :	
6 decades 1 Ω to 1 MΩ	> P01.1974.03
BR 07 :	
7 decades 1 Ω to 10 MΩ	> P01.1974.04

Capacitor box



- Assembly for Wheatstone Bridge
- 7-ratio K box > P03.1975.31A
- Zero Galvanometer > P03.1976.11A
- Dual switch box > P03.1975.29A
- Simple inverter box > P03.1975.30A

- Capacitor boxes
- 0.01 to 0.1 µF > P03.1996.13A
- 0.1 to 1 µF > P03.1996.12A
- 1 to 10 µF > P03.1996.11A
- BC 05 :
- 5 decades 0.1 nF to 10 µF > P01.1974.21

Simple and dual inverter box



Resistances box



- Inductances box
- BL 07 :
- 7 decades 1 µH 10 H > P01.1974.21

- 100 mV safety output shunts
- 1 A > HA 001
- 5 A > HA 005
- 10 A > HA 010
- 20 A > HA 020
- 30 A > HA 030

Current sensors

Ammeter clamps



The widest range of IEC 1010 clamps

MN88



Our innovation, technical mastery and desire to manufacture top-quality products that comply with norms have made Chauvin Arnoux the worldwide specialist in ammeter clamps. On the next pages, you will find a table presenting the clamps for measuring AC/DC current, followed by a diagram giving clamp form with dimensions and then another table grouping a large number of models for AC current. As a result of their specifications, certain clamps are specialized for specific applications.

- Clamps for oscilloscopes (BNC connectors): E3N, PAC12, PAC22, MN60, Y7N, C160, and D38N
- Clamps for leak currents: MN73 and C173
- Process current clamps: K1 and K2
- Clamp for measurement on the secondary winding of current transformers: MN71

As well as these standard specialized and unspecialized models, "specific" versions can also be produced on request: please ask for details.

Choosing your ammeter clamp

K1



a wide range of criteria for choosing an clamp. The approach below is designed to fine your requirements and guide you naturally ds the model which best suits your application. criteria selected are classified from 1 to 6. choose your clamp, we advise you to follow his logic:

- Measurement of direct or alternating current? (AC/DC clamps or AC clamps tables)
- High or low currents? (see the "Input" column to define the appropriate families of clamps) mall wires or large cables? (see the diagrams ie bottom of the next page and only choose lies with the shapes and dimensions required)

- What instrument will it be connected to? (see "Input / Connection" column to choose a clamp with compatible signal and connection possibilities)
- What are your other criteria? (see "Specific features" column to check that the clamp chosen fulfils your requirements perfectly)



MULTIMETERS												
Clamps	Output	C.A 5000	C.A 5001	C.A 5003	C.A 5005	C.A 5011	C.A 5205G	C.A 5210G	C.A 5220G	C.A 5230G	C.A 5240	C.A 5260
AC CLAMPS												
MN09	I		■	■					■	■		■
MN11	I	■	■	■					■	■		■
MN13	V						■	■				■
MN39	V						■	■				■
MN89	V DC	■			■		■	■				■
Y1N	I		■	■					■	■		■
C103	I		■	■					■	■		■
C122	I		■	■					■	■		■
C148	I		■	■					■	■		■
C173	V								■	■		■
D30CN	I	■	■	■					■	■		■
D36N	I	■	■	■					■	■		■
AmpFLEX	V						■	■		■		■
AC/DC CLAMPS												
K1/K2	V					■			■	■		■
E1N	V					■	■		■	■		■
E6N	V					■	■		■	■		■
PAC10	V					■	■		■	■		■
PAC11	V					■	■		■	■		■
PAC20	V					■	■		■	■		■

The ■ sign indicates the compatibility between a clamp and a multimeter
The colored squares indicate the best choice for your multimeter

Current measurement

Leak current measurement

Series	Model	Input						Output / Connections			Specific features				To order				
		Very low current	Low current	Medium current	Ho current	~ AC	... DC	Current	Voltage	Lead + safety plug ø 4 mm(±)	Female sockets ø 4 mm	BNC connector (oscilloscopes)	Transformation ratio (input/output)	Output protected against overvoltages		Automatic DC zero	Power measurement (low phase shift)	Bandwidth (frequency in Hz)	Typical accuracy
	MN73	10 mA to 2.4 A 100 mA to 240 A							2 V AC 2 V AC			1 A/1000 mV 1 A/10 mV					40 Hz to 10 kHz	≤ 1% ≤ 2%	> P01.1204.21
	C173	1 mA to 1.2 A 0.01 to 12 A 0.1 to 120 A 1 to 1200 A							1 V AC			1 A/1V 10 A/1V 100 A/1V 1000 A/1V					10 Hz to 3 kHz	≤ 0.7% ≤ 0.5% ≤ 0.3% ≤ 0.2%	> P01.1203.09
	B102	500 µA to 4 A 0.5 to 400 A							4 V AC 0.4 V AC			1 mA/1 mV 1 A/1 mV	●				10 Hz to 1 kHz	≤ 0.5% ≤ 0.35%	> P01.1200.83

Measurement on oscilloscope

	MN60	0.1 to 60 A peak 0.5 to 600 A peak							2 V AC 2 V AC			1 A/100 mV 1 A/10 mV					40 Hz to 40 kHz	≤ 2% ≤ 1.5%	> P01.1204.09
	Y7N	1 A to 1200 A peak							1 V AC			1 mA/1 mV					5 Hz to 10 kHz	≤ 2%	> P01.1200.75
	C160	0.1 to 30 A peak 1 to 300 A peak 1 to 2000 A peak							3 V peak 3 V peak 2 V peak			10 A/1 V 100 A/1 V 1000 A/1 V					10 Hz to 100 kHz	≤ 3% ≤ 2% ≤ 1%	> P01.1203.08
	D38N	1 to 90 A peak 1 to 900 A peak 1 to 9000 A peak							1 V AC			1 A/10 V 1 A/1 mV 1 A/0.1 mV					30 Hz to 50 kHz	≤ 2%	> P01.1200.57A
	E3N	0.05 to 10 A peak 1 to 100 A peak							1 V peak			1 A/100 mV 1 A/10 mV					DC to 100 kHz	≤ 3% ≤ 4%	> P01.1200.43A
	PAC12	0.2 to 60 A peak 0.4 to 60 A DC 0.5 to 600 A peak 0.5 to 600 A DC							600 mV AC/DC			1 A/10 mV 1 A/1 mV	●				DC to 10 kHz	≤ 1.5% ≤ 2%	> P01.1200.72
	PAC22	0.2 to 150 A peak 0.4 to 150 A DC 0.5 to 1400 A peak 0.5 to 1400 A DC							1.4 V AC/DC			1 A/10 mV 1 A/1 mV	●				DC to 10 kHz	≤ 1.5% ≤ 2.5%	> P01.1200.73

Measurement of process current

	K1	1 to 14.5 A DC 1 to 3 A RMS 1 to 2 A peak							4.5 V DC 3 V RMS 2 V peak	●		1 mA/1 mV					DC to 2 kHz	≤ 1%	> P01.1200.67
	K2	0.1 to 450 mA DC 0.1 to 300 mA RMS 0.1 to 450 mA peak							4.5 V DC 3 V RMS 2 V peak	●		1 mA/10 mV					DC to 1.5 kHz	≤ 1%	> P01.1200.74

Measurement on secondary winding of current transformers

	MN71	10 mA to 12 A							1 V AC	●		1 A/100 mV					40 Hz to 10 kHz	≤ 1%	> P01.1204.20
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(1) The upper value corresponds to 120% of the maximum nominal value.
(2) Lead + electronic unit with Ø 4 mm safety connectors, centre distance 19 mm, for K series

