ICS SCHNEIDER MESSTECHNIK

CHAUVIN ARNOUX

F200 - F400 - F600 Series

AC, DC and AC+DC TRMS Clamp Multimeters

TrueInRush

- Current: 2,000 A_{AC} / 3,000 A_{DC}
- Voltage: 1,000 $V_{AC/DC}$
- Clamping diameter: 60 mm
- Large 10,000-count display
- Automatic AC/DC detection
- Min, Max, Peak
- RELative and differential measurements
- Power values
- THD & Harmonics

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For Professional Use

- For electricians, clamp multimeters are ideal tools for any work in the field. Simple to use, they offer all the necessary functions in a single, compact solution.
- The F200 Series meets the needs of self-employed electricians and small and medium-sized business and industries in the electrical sector.
- For medium and high-power work, the F400 and F600 Series provide maximum safety whatever the measurement conditions and type of installation.
- With its large clamping diameter and current measurements up to 3,000 A, the F600 Series is perfect for working on electrical power distribution and transmission applications.

Safe and Robust

1,000 V CAT IV, an unprecedented level of safety for clamp multimeters!

Users can be sure of working in total safety and in compliance with the applicable standards.

The instruments' IP54 protection safeguards them against dust, in particular, thus guaranteeing that safety is maintained over time.

The mechanical design of these clamps enables them to pass the standard test for falls from a height of 2 metres.

Performance

All the clamps in the F200, F400 and F600 Series benefit from a fast 12-bit TRMS digital acquisition system offering high measurement accuracy.

Thanks to their large bandwidth and high crest factor, these clamps provide accurate measurements whatever the type of signal.

Ergonomics

The whole range has been designed for one-handed use, even when wearing protective gloves.

For maximum efficiency, each type of measurement has its own specific switch position.

The "1 key, 1 function" concept makes it even simpler to use.

In addition, all these clamps are equipped with automatic detection of the type of signal (AC or DC) for current, voltage and power measurements.

Various clamping diameters up to 60 mm are available to ensure comfortable measurements.

The rotary switch is fitted with special moulding for excellent grip even with protective gloves.

The casing is equipped with a shockproof band to protect against falls.

The backlit LCD screen is particularly comfortable to read, offering contrasts and a viewing angle which are unprecedented for this type of instrument (up to 10,000 counts).

All these clamp multimeters are equipped with automatic AC/DC detection.

Each key corresponds to a single function whatever the mode.

CATegory IV up to 1,000 V for greater safety.

The Quality of TRMS Measurements, Whatever the Type of Signal

A range offering unprecedented analytical and diagnostic functions!

TRMS Version of Min and Max!

The Min and Max are TRMS values calculated over a duration of up to 100 ms.
This feature is particularly useful for sizing an installation, the diameter of a power cable, a thermal protection device, etc.

Peak+ and Peak-

Calculated over a period of 1 ms, the Peak+ and Peak- values help to characterize the distortion affecting the signal measured.
For example, they may reveal variations in the installation's behaviour or even malfunctions.

THD and Harmonics

When seeking the causes of a malfunction, knowledge of the overall signal distortion (THD_r or THD_f) or frequential distortion (harmonic analysis) helps you to identify the precise corrective solution required: filtering, oversizing, etc.
Harmonic analysis also contributes to fire prevention.

ΔREL, for Quick Evaluation

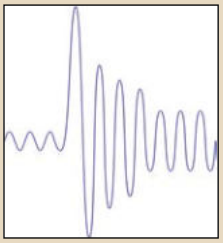
Comparison with a reference quantity is a quick way of evaluating and analysing your results. A signal's variations can be measured differentially or relatively. The first method indicates the difference between the value of reference and the value measured. The second method indicates the proportion.
The ΔREL function can be applied to any type of measurement and can be used jointly with the Min, Max and Peak functions.

INNOVATION FROM CHAUVIN ARNOUX

TrueInRush

The TrueInRush function makes it easy to analyse both the **inrush of a single motor** and the inrush of a **set of machines in operation**.

The clamp **automatically determines** the type of signal and the level of current in the installation and then **adapts the algorithm and measurement mode** to capture the expected overcurrent.



Indeed, correct sizing of electrical installations in terms of both the conductors and the protective systems implemented is a recurrent problem.

Overcurrents usually occur when an installation or a machine is started up or when machinery is subjected to heavy loads.

The TrueInRush function enables you to size the installation correctly.

Choose Your Clamp Multimeter

This 10-model range of clamp multimeters meets all your needs in the field.

1/ MEASUREMENT RANGE

3 series identifiable by their first digit for 3 measurement ranges

- The F200 Series for currents up to 600 A_{AC} / 900 A_{DC}
- The F400 Series for average currents up to 1,000 A_{AC} / 1,500 A_{DC}
- The F600 Series for high currents up to 2,000 A_{AC} / 3,000 A_{DC}

All the models also innovate by proposing as standard features:

- AC and DC voltage measurement up to 1,000 V
- Resistance and audible continuity
- Min / Max analysis
- True*InRush* overcurrent measurement

2/ TYPE CURRENT & FUNCTIONS

Each series comprises 3 or 4 models.
The last digit in each clamp's name corresponds to different applications and levels of analysis.
So the F203, F403 and F603 clamps, for example, offer the same functions but with different measurement ranges.

F200	F400	F600
600 A_{AC} / 900 A_{DC}	1,000 A_{AC} / 1,500 A_{DC}	2,000 A_{AC} / 3,000 A_{DC}

Voltage up to 1,000 V + **Resistance, audible continuity** + True*InRush*

F201 / F401
AC Applications

All the basics for mains-powered installations and equipment.

F203 / F403 / F603
"AC or DC" Applications

DC current
Temperature
Adapter function
ΔREL

F205 / F405 / F605
"Mixed AC+DC" Applications + Testing & Maintenance

Power values
THD
ΔREL
Min/Max/Peak
Phase rotation

F407 / F607
"Mixed AC+DC" Applications + Analysis & Surveys

Power values
Harmonics
Ripple
Recording
PC software

The Adapter function helps to extend the instrument's possibilities through the use of measurement probes (luxmeter, Infrared temperature sensor, tachometer, etc.) with voltage output (AC or DC).
A cleverly-designed system allows users to read the quantity measured directly.

Phase rotation

To determine the phase order, a "2-wire" microprocessor-based measurement system avoids the constraints and faults linked to instruments equipped with resistive or capacitive technologies when using protective accessories (gloves, mats, etc.) or isolating transformers.

Ripple

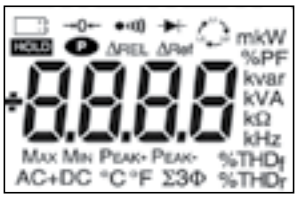
The ripple is a parameter that enables you to assess the quality of the smoothing on currents which are rectified and then smoothed.
The lower the ripple factor, the greater the efficiency of the smoothing.
If switching power supplies are involved, the voltage supplied includes residual ripple, particularly at high frequency.
This ripple is harmful for electronic equipment, so it should be kept to a minimum.

F200 SERIE

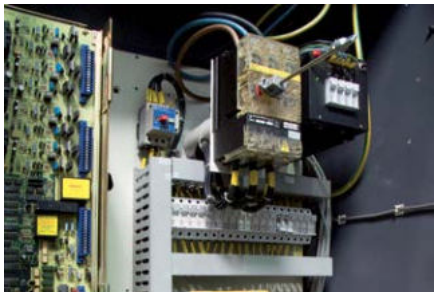
	F200 serie
Clamping diam.	34 mm
Current	600 $A_{AC\ or\ AC+DC}$ 900 A_{DC}
Domain of use	600V CAT IV 1,000 V CAT III

The F200 clamps are ideal for low-power or medium-power low-voltage applications: maintenance of tertiary or industrial electrical installations or installed machines, power supply diagnostics and/or sizing, commissioning of air-conditioning and heating systems, work on electric vehicles, etc.

		F201	F203	F205
Display resolution		**6,000 cts**	**6,000 cts**	**6,000 cts**
Measurements displayed		**x 1**	**x 1**	**x 1**
Display backlighting			●	●
Acquisition method		**TRMS**	**TRMS**	**TRMS**
Automatic AC/DC detection		●	●	●
A	AC	●	●	●
	DC		●	●
	AC+DC			●
V	AC	●	●	●
	DC	●	●	●
	AC+DC			●
Hz		●	●	●
Resistance/audible continuity		●	●	●
Temperature (°C / °F)		●	●	
Adapter function			●	
2-wire phase rotation				●
W, var, VA, PF				●
THD_f / THD_r				●
Min. / Max.		●	●	●
Peak+ / Peak-				●
True InRush		●	●	●
ΔREL			●	●



Complete display of F200 Series models



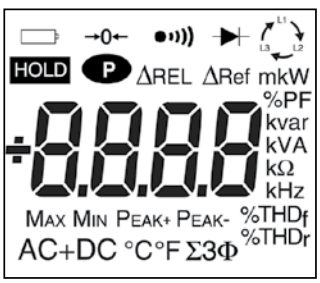
F400 SERIE

	F400 serie
Clamping diam.	48 mm
Current	1,000 $A_{AC\ or\ AC+DC}$ 1,500 A_{DC}
Domain of use	1,000V CAT IV 1,000 V CAT III

The F400 Series is designed for medium-power low-voltage applications in sectors such as LV electricity production and distribution, industry, railways, etc. It is also suitable for lift/elevator technicians and other lifting and transport specialists.

The main applications for the clamps in this series are maintenance, testing, monitoring, diagnostics and connection.

		F401	F403/F603
Display resolution		**10,000 cts**	**10,000 cts**
Measurements displayed		**x 1**	**x 1**
Display backlighting		●	●
Acquisition method		**TRMS**	**TRMS**
Automatic AC/DC detection		●	●
A	AC	●	●
	DC		●
	AC+DC		
V	AC	●	●
	DC	●	●
	AC+DC		
Hz		●	●
Resistance/audible continuity		●	●
T° (°C / °F)		●	●
Adapter function			●
2-wire phase rotation			
W, var, VA, PF			
DPF			
THD_f / THD_r			
Harm0... Harm25			
Min. / Max.		●	●
Peak+ / Peak-			
True InRush		●	●
ΔREL			●
Recording			
PC software (included) / Bluetooth			



Complete display for F401, F403, F405, F603 & F605

F600 SERIE

	F600 serie
Clamping diam.	60 mm
Current	2,000 $A_{AC\ or\ AC+DC}$ 3,000 A_{DC}
Domain of use	1,000 V CAT IV 1,000 V CAT III

The F600 Series is designed for the high-power LV market in sectors such as electrical power distribution, chemical and petrochemical industries, metallurgy, transport, etc.
Applications: maintenance, testing, monitoring, diagnostics, sizing, connection, etc.

F405/F605	F407/F607
10,000 cts	10,000 cts
x 1	x 3
•	•
TRMS	TRMS
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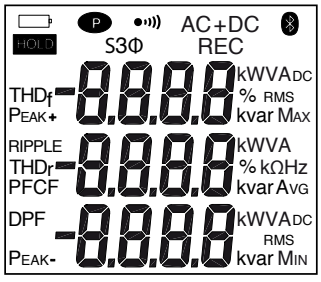
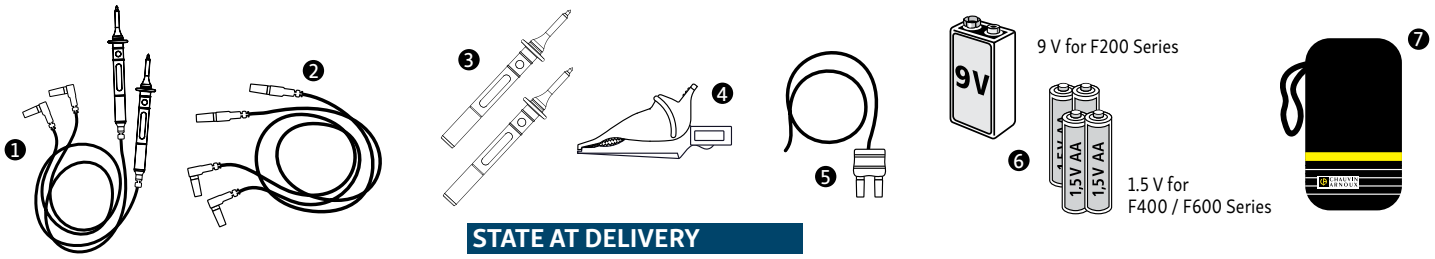


Complete display for F407 & F607

	F200 SERIES			F400 SERIES				F600 SERIES		
Model	**F201**	**F203**	**F205**	**F401**	**F403**	**F405**	**F407**	**F603**	**F605**	**F607**
Clamping diameter	34 mm			48 mm				60 mm		
Display	LCD	Backlit LCD		Backlit LCD				Backlit LCD		
Resolution	6,000 counts			10,000 counts				10,000 counts		
Number of values displayed	1			1			3	1		3
Type of acquisition	TRMS [AC]	TRMS [AC]/DC	TRMS [AC, AC+DC]/DC	TRMS [AC]	TRMS [AC]/DC	TRMS [AC, AC+DC]/DC		TRMS [AC]/DC	TRMS [AC, AC+DC]/DC	
Autorange	Yes			Yes				Yes		
Automatic AC / DC detection	-	Yes		-	Yes			Yes		
A AC	0.25 to 600 A (900 A peak)			0.25 to 1,000 A (1,500 A peak)				0.25 to 2,000 A (3,000 A peak)		
A DC	-	0.25 to 900 A		-	0.25 to 1500 A			0.25 to 3,000 A		
A AC+DC	-		0.25 to 600 A (900 A peak)	-		0.25 to 1,000 A (1,500 A peak)		-	0.25 to 2,000 A (3,000 A peak)	
Best accuracy	1 % L. + 3 cts			1 % L. + 3 cts				1 % L. + 3 cts		
V AC	0.15 to 1,000 V			0.15 to 1,000 V				0.15 to 1,000 V		
V DC	0.15 to 1,000 V			0.15 to 1,000 V				0.15 to 1,000 V		
V AC+DC	-		0.15 to 1,000 V	-		0.15 to 1,000 V		-	0.15 to 1,000 V	
Best accuracy	-		1 % reading + 3 cts	-		1 % reading + 3 cts		-	1 % reading + 3 cts	
Hz	Current: 5.0 Hz to 3,000 Hz Voltage: 5.0 Hz to 20.00 kHz			Current: 5.0 Hz to 2,000 Hz Voltage: 5.0 Hz to 20.00 kHz				Current: 5,0 Hz to 1,000 Hz Voltage: 5,0 Hz to 20.00 kHz		
Ohm	0.1 Ω to 59.99 kΩ			0.1 Ω to 99.99 kΩ				0.1 Ω to 99.99 kΩ		
Open-circuit voltage	≤ 8 V			≤ 8 V				≤ 8 V		
Measurement current	≤ 680 µA			≤ 680 µA				≤ 680 µA		
Audible continuity	Yes			Yes				Yes		
Continuity threshold	adjustable from 1 to 599 Ω			adjustable from 1 to 999 Ω			40 Ω	adjustable from 1 to 999 Ω		40 Ω
Diode test (semiconductor junction)	Yes			Yes			No	Yes		No
Temperature (K type)	°C: -60.0 to +1,000.0 °C °F: -76,0 to +1,832 °F		-	°C: -60.0 to +1,000.0 °C °F: -76,0 to +1,832 °F		-		°C: -60.0 to +1,000.0 °C °F: -76,0 to +1,832 °F		-
Single-phase and total three-phase power values	Yes			Yes				Yes		
Active power	-		1 W to 600 kW	-		1 W to 1,000 kW		-	1 W to 2,000 kW	
Reactive power	-		1 var to 600 kvar	-		1 var to 1,000 kvar		-	1 var to 2,000 kvar	
Apparent power	-		1 VA to 600 kVA	-		1 VA to 1,000 kVA		-	1 VA to 2,000 kVA	
FP / DPF	-		Yes / No	-		Yes / No	Yes / Yes	-	Yes / No	Yes / Yes
Harmonic analysis	-		Yes	-		Yes	Yes	-	Yes	Yes
THD_f / THD_r	-		Yes / Yes	-		Yes / Yes	Yes / Yes	-	Yes / Yes	Yes / Yes
Frequency analysis	-		No	-		No	25th order	-	No	25th order
Phase rotation (2-wire method)	-		Yes	-		Yes	-	-	Yes	-
Functions										
True InRush (Overcurrent measurement)	Yes			Yes				Yes		
Motor inrush	Yes			Yes				Yes		
Load change	Yes			Yes				Yes		
Hold	Yes			Yes				Yes		
Min. / Max.	Yes			Yes				Yes		
Peak+ / Peak-	-		Yes	-		Yes			Yes	
RELative ΔX / Differential ΔX/X (%)	-	Yes / Yes		-	Yes / Yes		-	Yes / Yes		-
Auto Power Off	Yes			Yes				Yes		
Data recording	-			-			Yes	-		Yes
Communication interface	-			-			Bluetooth	-		Bluetooth
Electrical safety as per IEC 61010	600 V CAT IV			1,000 V CAT IV & CAT III				1,000 V CAT IV & CAT III		
Power supply	1 x 9 V LF22			4 x 1.5 V AA				4 x 1.5 V AA		
Dimensions & weight	78 x 222 x 42 mm / 340 g			92 x 272 x 41 mm / 600 g				111 x 296 x 41 mm / 640 g		



STATE AT DELIVERY

	F201 F203	F401 F403 F603	F205 F405 F605	F407 F607
1	x 1			
2		x 1	x 1	x 1
3		x 1	x 1	x 1
4			x 1	x 2
5	x 1	x 1		
6	x 1	x 1	x 1	x 1
7	x 1	x 1	x 1	x 1

+ Start-up Guide and Operating Manual (5 languages) on CD-Rom

TO ORDER

F201 ..... P01120921
F203 ..... P01120923
F205 ..... P01120925
F401 ..... P01120941
F403 ..... P01120943
F405 ..... P01120945
F407 ..... P01120947
F603 ..... P01120963
F605 ..... P01120965
F607 ..... P01120967

For assistance and ordering

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