



MEASUREMENTS		F09 CLAMP	MX 2040 CLAMP	C.A 8220	C.A 8230	C.A 8332B	C.A 8334B	C.A 8352	C.A 8340/42
<b>VOLTAGE</b>	AC	■	■	■	■	■	■	■	■
	DC	■	■	■	■	■	■	■	■
<b>CURRENT</b>	AC	■	■	■	■	■	■	■	■
	DC	■	■	■	■	■	■	■	■
<b>FREQUENCY</b>		■	■	■	■	■	■	■	■
<b>POWER</b>	W	■	■	■	■	■	■	■	■
	VA	■	■	■	■	■	■	■	■
	var	■	■	■	■	■	■	■	■
	PF	■	■	■	■	■	■	■	■
	DPF/cos φ	■	■	■	■	■	■	■	■
<b>ENERGY</b>	Wh	■	■	■	■	■	■	■	■
	varh	■	■	■	■	■	■	■	■
<b>HARMONICS</b>	THD	■	■	■	■	■	■	■	■
	Fllicker								
<b>FLICKER</b>	Pst	■	■	■	■	■	■	■	■
	Plt	■	■	Soft	Soft	Soft	■	■	■
	Sliding Plt	■	■	■	■	■	■	■	■
<b>UNBALANCE</b>									
<b>INRUSH</b>	Single	■	Single	■	■	■	■	■	Three/Single
<b>RECORDING</b>		■	Software	■	■	■	■	■	■
<b>ALARMS</b>		■	■	■	■	■	■	■	■
<b>TRANSIENTS</b>		■	■	■	■	■	■	■	■
<b>TEMPERATURE</b>		■	■	■	■	■	■	■	■
<b>RESISTANCE</b>		■	■	■	■	■	■	■	■
<b>CONTINUITY</b>		■	■	■	■	■	■	■	■
<b>PHASE ROTATION</b>	Manual / Auto	M	M	M	A	A	A	A	A
<b>MIN/MAX</b>		■	■	■	■	■	■	■	■
<b>PEAK</b>		■	■	■	■	■	■	■	■
<b>General specifications</b>									
<b>Display</b>	4 000 cts	3 000 cts	LCD 173 segments backlit	Colour LCD 1/4 VGA	Colour LCD 1/4 VGA	Colour LCD 1/4 VGA	Colour LCD 10 inch Touch screen	Colour LCD Touch screen	
<b>Electrical safety</b>	CAT III 600 V	CAT IV 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V	CAT IV 600 V	CAT III 500 V	CAT III 600 V	
<b>Associated software</b>		SX DCOM	P.A.T. Dataview <sup>®</sup>	Dataview <sup>®</sup>	Dataview <sup>®</sup> QualistarView	Dataview <sup>®</sup> QualistarView	P.Q.M.	Dranview <sup>®</sup>	
<b>Communication</b>		Series port	Series port USB	Series port USB	Series port USB	Series port USB	modem, Series port Ethernet	Ethernet, USB Series port via adapter	
<b>Dimensions (mm)</b>	193 x 70 x 37	270 x 90 x 50	211 x 108 x 60	211 x 108 x 60	240 x 180 x 55	240 x 180 x 55	360 x 300 x 150	300 x 64 x 203	
<b>Weight</b>	260 g	550 g	840 g	880 g	2.1 kg	2.1 kg	4 kg	1.9 kg	

### F09 fully automatic AC+DC TRMS pocket multimeter clamp

Single-phase and balanced three-phase power. Voltage, current 400 A-AC/DC. Multi-purpose format.

#### State of delivery:

Carrying case, set of 2 leads with test probes, one 9V battery, 1 crocodile clip.



### C.A 8220 "motor maintenance" power analyser

Half-period voltage calculation (EN 50160). Power analyser Transfer software (P.A.T.) to process the measurements on PC. Motor temperature measurement.

#### State of delivery:

6 fitted AA batteries, 1 black banana lead (straight-straight), 2 x 4 mm test probes, 2 crocodile clips (1 red, 1 black), 1 RS232/USB optical lead.



### C.A 8332B CAT IV/600V

Instant display of network analysis.

#### State of delivery:

QualistarView software, DB9F optical series lead, 4 banana/banana voltage leads – length 3 m, 4 crocodile clips, 1 mains power lead.



### C.A 8340 Electrical grid analyser

Colour touch screen  
61000-4-30 Class A

#### State of delivery:

1 charger mains adapter, 4 insulated male banana/banana voltage leads, 4 insulated crocodile clips, 1 shoulder bag, 128 MB memory card, 1 operating manual.



### C.A 8352 electrical grid quality analyser

Intuitive use. Working memory expanded to 10 GB on internal hard disk.

#### State of delivery:

1 carrying bag, 4 current leads, 8 voltage leads, 8 crocodile clips, PC processing software.



### MX 2040 2,000 A power clamp

Measurements on three-phase systems, Energy metering. IEC 61010 Cat. IV, 600 V

#### State of delivery:

3 measurement leads, 3 test probes, 3 crocodile clips, batteries, operating manual.



### C.A 8230 economical power analyser

Single-phase and balanced three-phase power, Direct access to the different functions, Automatic recognition of the type of sensor connected, Recording and capture of events, Inrush.

#### State of delivery:

1 carrying bag, 6 accumulators, 1 red banana lead (straight-straight), 1 black banana lead (straight-straight), 2 x 4 mm test probes (1 red, 1 black), 2 crocodile clips (1 red, 1 black), 1 mains adapter, 1 RS232/USB optical lead and DataViewer<sup>®</sup> processing software.

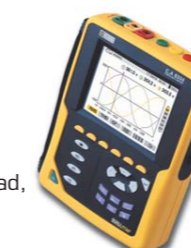


### C.A 8334 B CAT IV/600V

Analyser for 3-phase electrical grids and transients (4 MB memory).

#### State of delivery:

QualistarView software, DB9F optical series lead, 4 banana/banana voltage leads – length 3 m, 4 crocodile clips, 1 mains power lead.



### C.A 8342 electrical grid analyser with high-frequency option

Advanced power analysis.

1 MHz sampling rate.

61000-4-30 Class A.

#### State of delivery:

1 charger mains adapter, 4 insulated male banana/banana voltage leads, 4 insulated crocodile clips, 1 shoulder bag, 128 MB memory card, 1 operating manual.



### DISTRIBUTOR

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## THE STANDARDS

### EN 50160

Defines the measurements required to qualify the voltage delivered by the electrical grid: rms voltage, outages, voltage dips, swells, flicker, frequency, harmonics (up to the 40th order) and three-phase system unbalance.

### IEC 61000-4-30

Defines the methods and accuracies for the power quality measurements listed in the EN 50160 standard (rms voltage, outage, voltage dips and swells, harmonics).

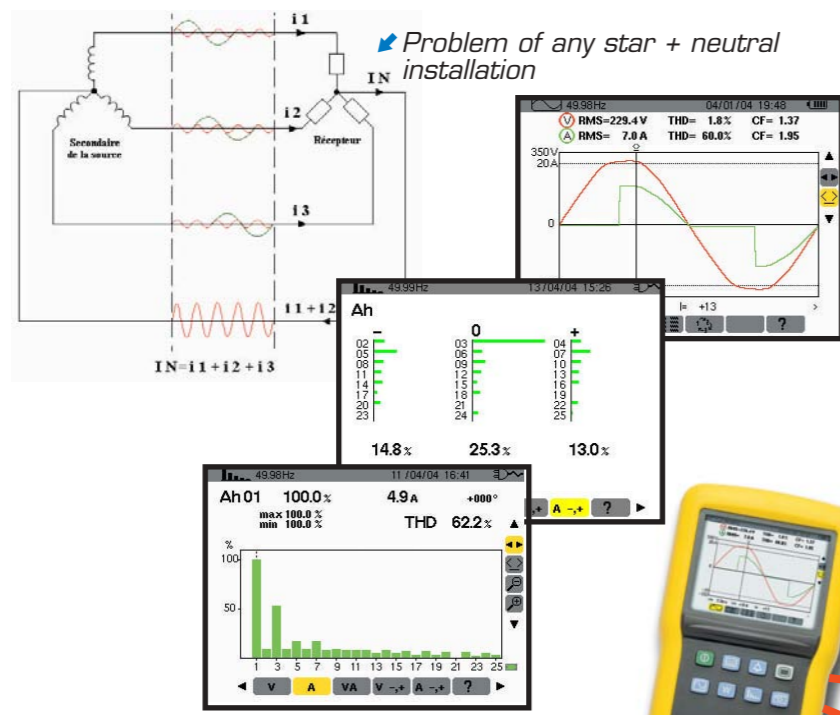
### IEC 61000-4-7

Defines the method for measuring harmonics and interharmonics

### IEC 61000-4-15

Defines the flicker measurement method including:

- **Pst short-term flicker indicator:** Quantitative evaluation of the flicker over a 10-minute period.
- **Plt long-term flicker indicator:** Quantitative evaluation of the flicker over a 2-hour period, using 12 successive short-term flicker (Pst) values.



## H3 harmonics

**Causes:** Loads such as a switching power supply, compact fluorescent lamps, etc., connected to a star + neutral installation generate harmonics of order 3 and multiples of 3.

**Risks:** Fire, untimely tripping of safety systems, etc.

**Measurements:** THD, THD per harmonic order.

**Recommended instruments:** C.A 8220, C.A 8230, C.A 8232B/34B, C.A 8340/42, C.A 8352

## Alarms/Events

**Purpose:** Detecting and providing notification of a specific event and testing the quality of the electricity supplied.

**Risks:** Equipment containing digital electronic components is sensitive to micro-cuts, overvoltage, harmonics, disturbance, etc.

**Recommended instruments:**

C.A 8230, C.A 8332B/34B, C.A 8340/42, C.A 8352

## Flicker

**Cause:** Loads drawing high currents, leading to flickering, frequency variations, etc.

**Risks:** Medical (malaise, fatigue, headache, etc.)

**Recommended instruments:**

C.A 8230, C.A 8332B/34B, C.A 8340/42, C.A 8352

## Reactive power (VAR)

**Applications:** Non-linear current loads (variable speed drive, switching power supply, etc.).

**Risks:** Fire, untimely tripping of electrical protection devices, fire, over-billing, etc.

**Recommended instruments:**

C.A 8220, C.A 8230, C.A 8232B/34B, C.A 8340/42, C.A 8352

## Power and cos φ (THD)

**Purpose:** Qualifying an electric current.

**Risks:** Damage to the equipment connected to the electrical grid.

**Recommended instruments:**

C.A 8220, C.A 8230, C.A 8332B/34B, C.A 8340/42, C.A 8352, F09

## Rotation speed/RPM

**Applications:** Motor maintenance.

**Purpose:** Verification of operation (slip: difference between the machine rotation speed and the synchronism speed).

**Recommended instrument:**

C.A 8220

29 15 RPM

## Power consumption

**Purpose:** Assessment of power consumption (single-phase and three-phase).

**Recommended instruments:**

MX 2040 clamp, C.A 8230, C.A 8352, C.A 8332B/34B, C.A 8340/42

## Recording/Monitoring

**Scope:** The whole electrical installation.

**Recommended instruments:**

C.A 8230, C.A 8232B/34B, C.A 8340/42, C.A 8352

## Three-phase grid unbalance

**Scope:** Electrical distribution.

**Causes:** Modification of the electrical installation (changes to lighting, heating, etc.).

**Risks:** Voltage difference between the phases leading to malfunction or ageing of the loads connected.

**Recommended instruments:**

C.A 8340/42, C.A 8352, C.A 8332B/34B

## Harmonics

**Causes:** Non-linear current loads, arc furnaces.

**Risks:** Untimely tripping of electrical protection devices, fire, etc.

**Measurements:** THD, % per order.

**Recommended instruments:** C.A 8220, C.A 8230, C.A 8232B/34B, C.A 8340/42, C.A 8352

