CHAUVIN ARNOUX

C.A 8331 - C.A 8333 - C.A 8336 - C.A 8436

Power and Energy quality Analysers

The experience of the Qualistar, ensuring high performance

- 5 voltage inputs & 4 current inputs
- 10-minute Inrush mode
- Calculation of distorting power
- IP67: all-terrain model available

QUALISTAR+

- Measure all the necessary voltage, current and power parameters for full diagnosis of an electrical installation.
- All the power measurements needed to make an energy efficiency diagnosis
- Capture and record all the parameters, transients, alarms and wave forms simultaneously.
- Proven simplicity of use.

TrueInRush

1000 V CAT III | 600 V CAT IV | CEI 61000-4-30 | EN 50160

Eco Conception

Conception Fabrication Française

Measure up

Qualistar+ range

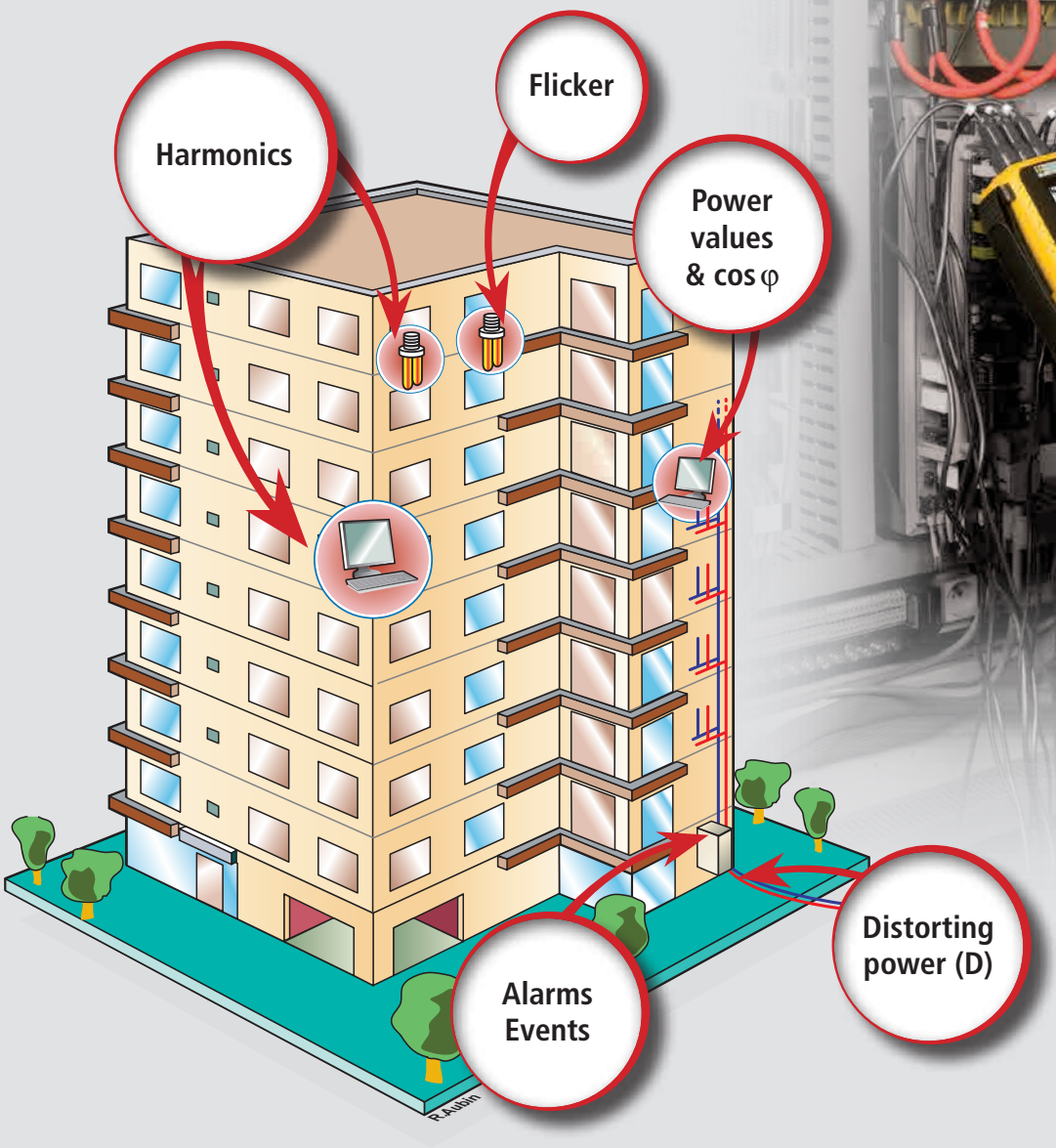
Designed for inspection and maintenance teams in industrial or administrative buildings, the Qualistar can provide a snapshot of the main electrical network quality characteristics. Easy to handle and precise, these instruments also offer a large number of calculated values and several processing functions.

Designed to cover all 600 V CAT IV and 1000 V CAT III applications in compliance with the IEC 61010 standard, the Qualistar+ range is divided up according to the functions provided and the connections available:

- C.A 8331 & C.A 8333: 4 voltage inputs and 3 current inputs,
- C.A 8336 & C.A 8436: 5 voltage inputs and 4 current inputs.

The whole range benefits from a set of inserts and rings for customizing the colour-coding in each country. Equipped with IP67 connections to ensure water-proofing, the C.A 8436 is also compatible with all the existing Qualistar measuring accessories.

Functions



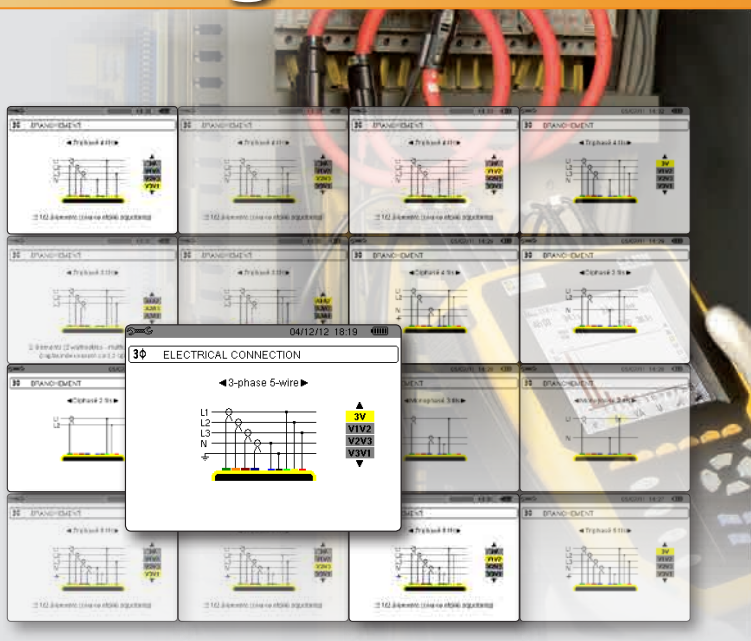
- Real-time display of wave forms (4 voltages and 4 currents)
- Half-period RMS measurements of voltages and currents
- Intuitive use
- Automatic recognition of the different types of current sensors
- Measurement on any type of installation: three-phase, Aron, etc.
- Integration of all the DC components
- Measurement, calculation and display of harmonics up to the 50th order,
- Display of phasor diagram
- Measurement of P, N, Q_1, S and D power values (total and per phase)
- Energy measurement (total and per phase)
- Calculation of the K Factor & FHL
- Calculation of distorting voltages and currents
- Calculation of the cos φ displacement power factor (DPF) and the power factor (PF)
- Inrush over up to 10 minutes
- Capture of hundreds of transients lasting several tens of µs
- Calculation of Pst & Plt flicker values
- Unbalance calculation (current and voltage)
- Monitoring of the electrical network with setting of alarms
- IEC 61000-4-30 Class B
- Automatic parameter settings for EN 50160 reports
- Back-up and recording of screenshots (image and data)
- Recording and export on PC
- Software for data recovery and real-time communication with a PC

Functions

Connections

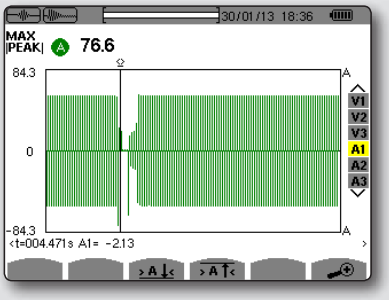
The Qualistar models are ideal for applications on all types of electrical networks, from the simplest to the most complex:

- Single-phase, split-phase and three-phase with or without neutral
- All types of 2, 3, 4 and 5-wire electrical networks
- 2-wattmeters method
- ARON
- 2 ½ elements…



Longer Inrush… over 10 minutes!

The Inrush current corresponds to the maximum input current drawn by an electrical device when it is powered up. This measurement helps to size the electrical installation correctly.



The Inrush is measured over a period of 10 minutes. Once you have chosen the acquisition mode (RMS or peak), the Qualistar captures everything.

Short or long-term flicker

The flicker (as defined by the IEC/EN standard) characterizes voltage variations which cause lighting fluctuations, for example.

According to the applicable standards, the Flicker level is expressed by two parameters:

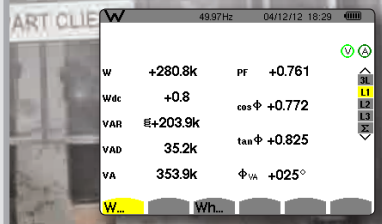
- **Pst (short-term flicker)**
  Calculation of the Pst, which is used to assess the flicker level, is based on statistical processing of the voltage signal sampled. It is measured over a period of 10 minutes
- **Plt (long-term flicker)**
  This is a multiple of the Pst. It is measured over a period of 2 hours.

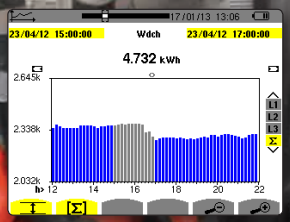
Power and energy quality analysers

Energy values, including **Tonnes Oil Equivalent**

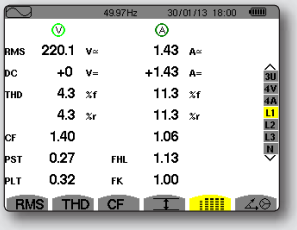
The Qualistar models measure energy. This mode displays all the values relating to power and energy.

- **"Start" and "Stop" keys to activate and deactivate summing of the energy values.**
- **A new feature is the wide variety of units available: kW, Joule, nuclear toe, non-nuclear toe, BTU, etc**





Calculation of K factor for transformers

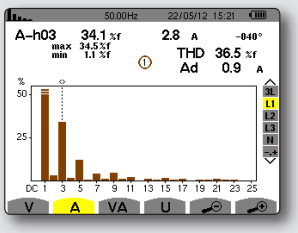


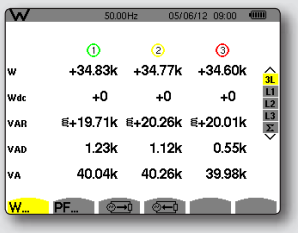
The harmonic currents flowing in a network lead to increased losses in the windings. This results in heating of the transformer and reduces the life span of the instruments connected.

- compliance with the NF EN 50464-3 standard for calculating K to determine transformer's derating.
- the FHL and European K factor parameters are recorded and measured simultaneously.

Harmonics

All the useful parameters are measured: global THD and per phase on U, I, V and VA, phase offset of harmonics. Some models offer a VA harmonics function and an "expert mode".





New: the harmonics measurement function is more comprehensive:

- calculation of the harmonics in %f and %r
- decomposition of the harmonics on the neutral conductor
- calculation of the distorting voltages and currents

Distorting power

New!
Breakdown of the reactive power values, with the concept of non-active power (N), distorting power (D) and reactive power (Q_1).

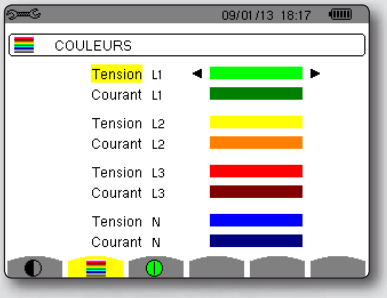
- The deforming power (D) for sizing the anti-harmonic filters.
- The reactive power (Q_1) linked to the phase shift of the fundamental for sizing the capacitor bank for power phase correction.
- The total reactive power (N) of the installation.

Configuration

- Users enter the instrument's general parameters directly (date and time, display contrast, colour, etc.).
- The menus, help screens and pop-ups are translated into all the languages.
- They select the type of network to which the Qualistar is connected.
- They configure the measurement and recording parameters.

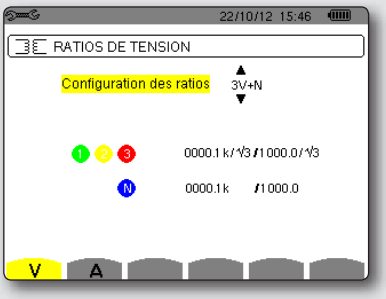
Languages

Display



Ratios and sensors

When they are connected, the current sensors are recognized automatically by the Qualistar.
By configuring the ratios, it is possible to obtain **direct readings of the measurements** on the transformer primary.

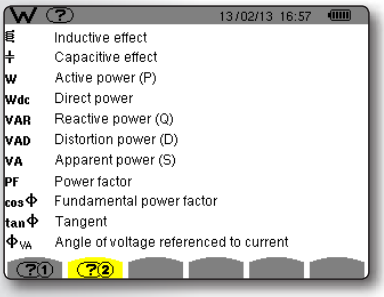


Practical advantages

Accessible on the front panel of the Qualistar, screenshots can be produced simply by pressing a key. The Help function is available at every stage.

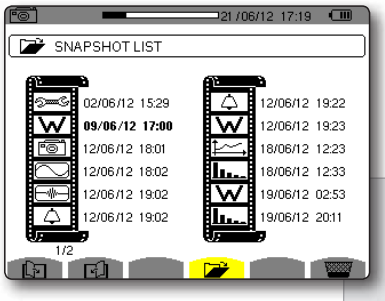
Help

If you have any hesitations, the **Help** key clearly explains the functions applicable to the screen display.



Screenshot

When this key is pressed, the instrument takes a screenshot. The screen displayed is then saved automatically with time/date-stamping.



Display

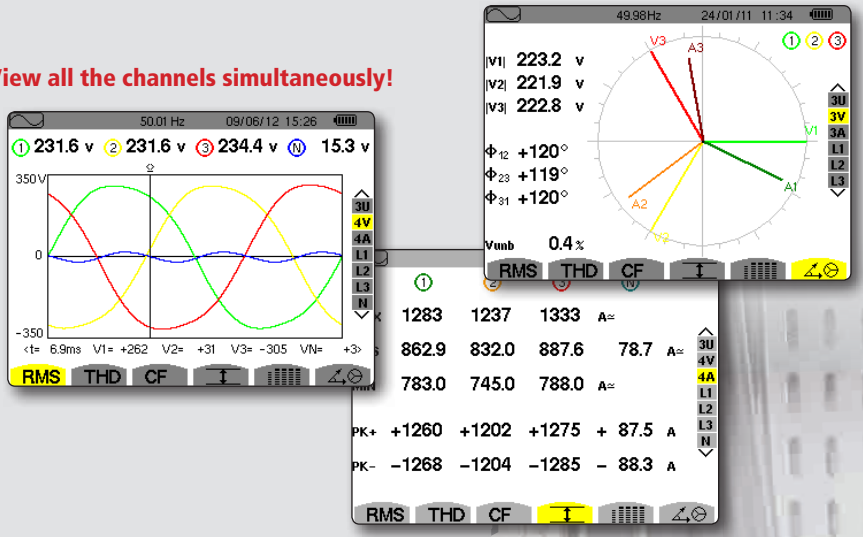
View the characteristics of a network instantaneously

OBSERVATION

Graphics

The Qualistar models allow you to view all the inputs simultaneously.
The measurements are displayed as waveforms; values or Fresnel diagrams.

View all the channels simultaneously!

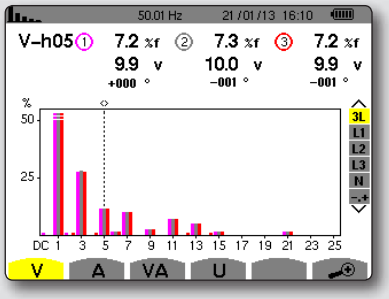


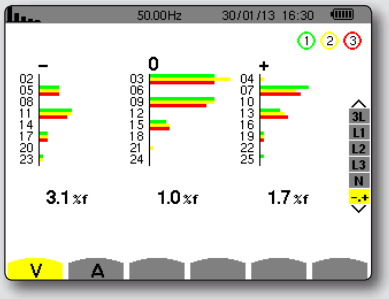
DIAGNOSTICS

Harmonics mode

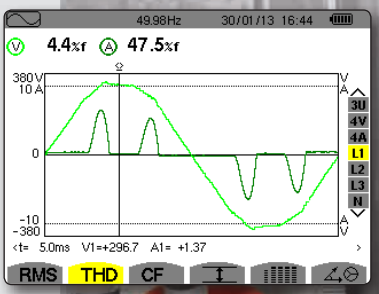
Global THD and per phase on U, I, V and VA in % and RMS value, phase offset of harmonics. They offer the expert mode for the Harmonics function.
These two instruments can be used to analyse the influence of the harmonics on heating of the neutral or on rotating machines.

GLOBAL THD





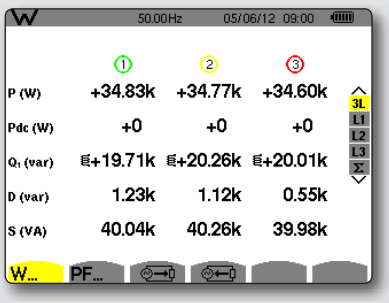
THD PHASE BY PHASE



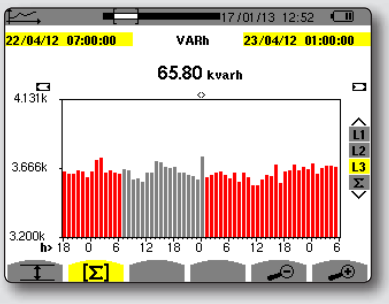
Power/Energy mode

This mode displays all the values concerning power and energy. The “start” and “stop” keys can be used to activate and deactivate totalizing of the energies.

POWER MEASUREMENT



INTEGRATION OF POWER / ENERGY OVER A PERIOD OF TIME



Monitor everything,

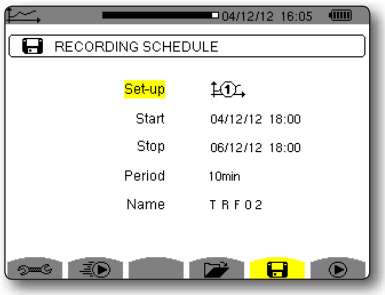
Configuration

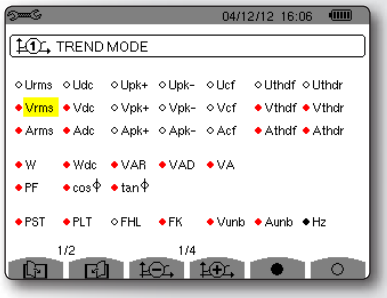
Recording mode

- More than 450 recordable values with all the required parameters and graphic display.
- Programmable recording period and storage rate.

New! Quick start-up:

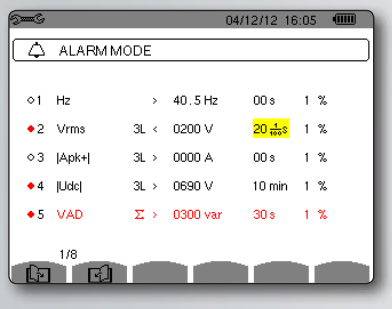
- **Immediate start of recording**
- Automatic indication of Min/Max values
- Auto-completion of measurement campaign names

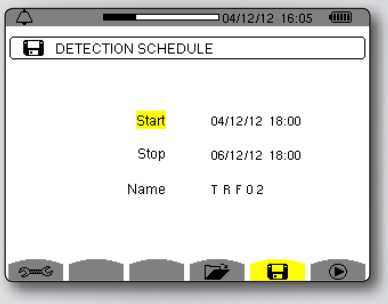




Alarms mode

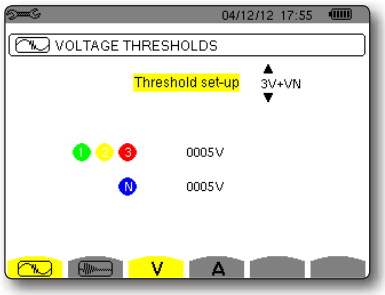
- **Up to 40 alarms can be set simultaneously!**
- Threshold overruns to be monitored can be configured during set-up.
- For each alarm threshold overrun, a time/date-stamped recording of the event is made with the duration and the extreme values.
- Possibility of modifying the end dates for programmed alarms.

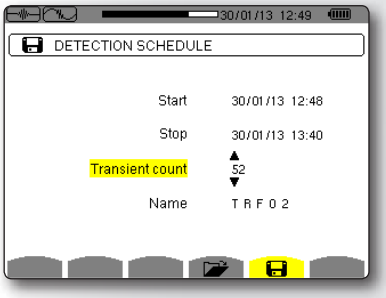




Transients mode

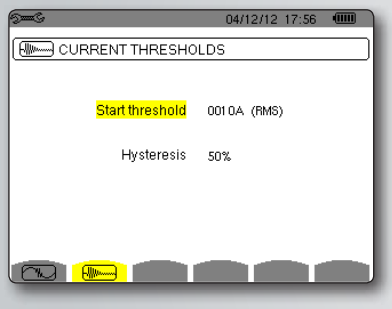
- Capture of events on the voltage and current with triggering according to thresholds.
- **Capture of hundreds of transients.**
- Display of events as short as a few tens of µs.

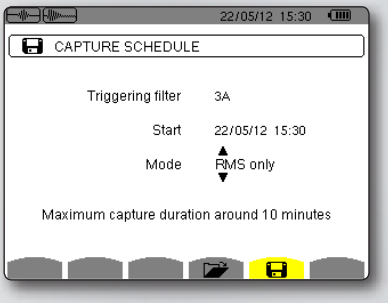




Inrush & TrueInrush

- Monitoring of the Inrush current for a load when it is powered up.
- **Records the currents, voltages and frequency.**
- For correct sizing of electrical installations.
- To view source switching faults.





with more parameters

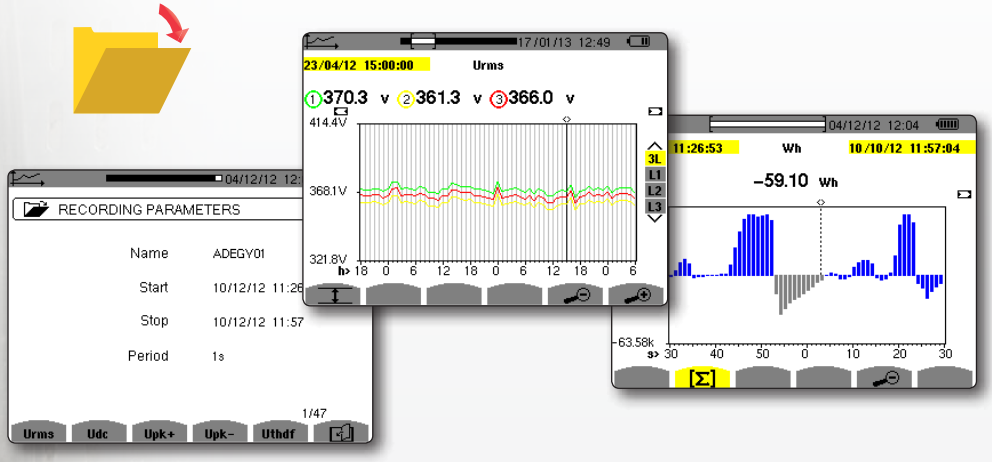
Acquisition in progress

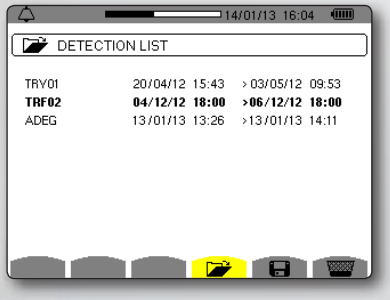
During acquisition:

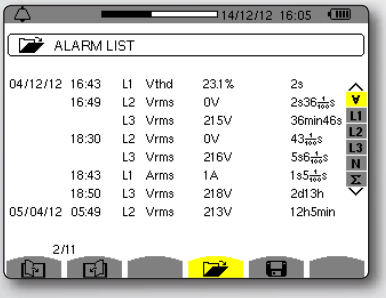
- Operation of several modes in parallel,
- Possibility of viewing the data during a campaign.

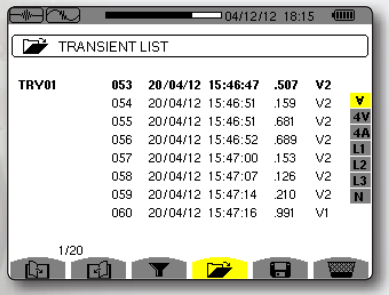
Users can view all the parameters, so they can be checked at any time.

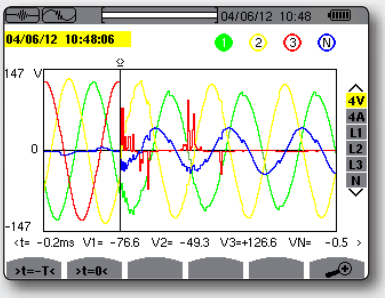
Analysis

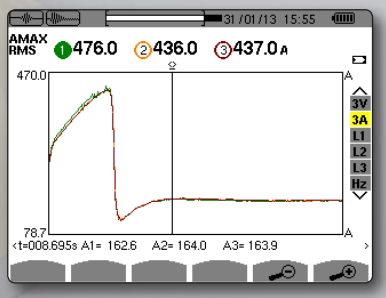


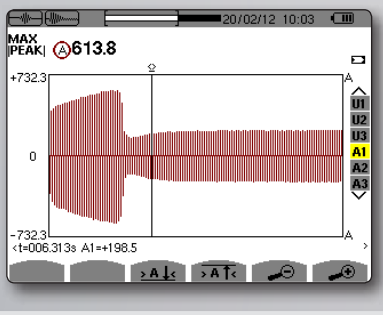












Special all-terrain C.A 8436

A rugged, waterproof C.A 8436, the special Qualistar+ for all conditions and all seasons!

IP 67

- Indoor and outdoor use, including in the rain
- 5 voltage inputs, 4 current inputs
- Continuous, simultaneous recording of all the parameters
- Monitoring with alarms
- All installation types

Specific caps have been developed to ensure maximum waterproofing for the C.A 8436 analyser.

For less restricted working, the C.A 8436 is self-powered by the phase, from 100 V to 1,000 V, AC or DC.

The rugged site case is ideal for industrial use in factories, production workshops, etc. It is so rugged that it can even withstand projections of solids or liquids.

Specific accessories for this model: mains lead, MiniFlex® sets of voltage leads MiniFlex® and AmpFlex® clamps.

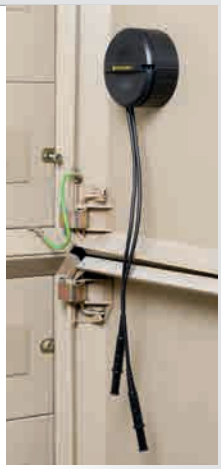
ACCESSORIES

Essailec plug for all the Qualistar models

A cable with an ESSAILEC plug can be used for testing without disturbances or interruptions in the power supply circuit on meters and the protective relays installed in the secondary circuits of the current or voltage transformers. The main advantage is quick and simple measurement with maximum user safety.

Reeling Box

This practical magnetized winder equipped with the MultiFix system allows you to adjust the length of your cables. It can be opened so that users can install banana-type leads for voltage measurements or MiniFlex® MA193-250 flexible sensors for current measurements. It also provides a simple means of stowing your cables.



PA31ER adapter

This enables self-powering of the Qualistar+ via the phase from 100 V to 1,000 V, AC or DC.
It is connected directly to the voltage inputs and is:

- IP53
- IEC 61010 CAT III 1,000 V / CAT IV 600 V.

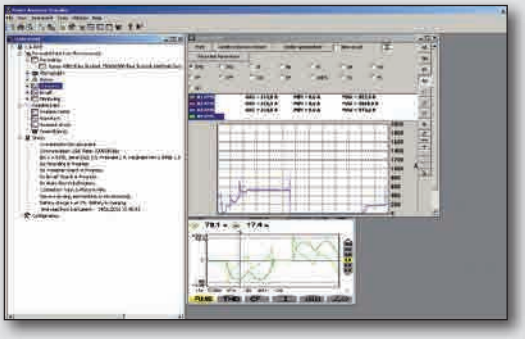
Accessories and software

ACCESSORIES

Model	MN93	MN 93A	MA193-250	MA196-350 MA193-350	PAC93	A196-610 A193-450	A193-800	C193	E3N	J93
Measurement range	500 mA to 200 AAC	0.005 AAC to 100 AAC	100 mA to 10 kAAC	100 mA to 10 kAAC	1 A to 1,000 AAC 1 A to 1,300 ADC	100 mA to 10 kAAC	100 mA to 10 kAAC	1 A to 1,000 AAC	50 mA to 10 AAC/DC 100 mA to 100 AAC/DC	50 A to 3,500 AAC 50 A to 5,000 AAC
Clamping Ø / length	20 mm	20 mm	Ø 70 mm / 250 mm	Ø 100 mm / 350 mm	1 x Ø 39 mm 2 x Ø 25 mm	Ø 190 mm / 610 mm Ø 140 mm / 450 mm	Ø 250 mm / 800 mm	52 mm	11.8 mm	72 mm
IEC 61010	600 V CAT III / 300 V CAT IV		1,000 V CAT III / 600 V CAT IV		600 V CAT III / 300 V CAT IV	1,000 V CAT III / 600 V CAT IV		600 V CAT IV	600 V CAT III / 300 V CAT IV	600 V CAT III / 300 V CAT IV

SOFTWARE

The measurements made with the Qualistar can be processed using two software products; Power Analyzer Transfer delivered as standard and DataView® available as an option.



Power Analyzer Transfer

- Configuration of the instrument: setup, recording, alarms
- Real-time display
- Processing of the recorded data and the alarms
- Transfer of screenshots and transients
- Data export into Excel spreadsheets
- Data export in graphic form in Windows™

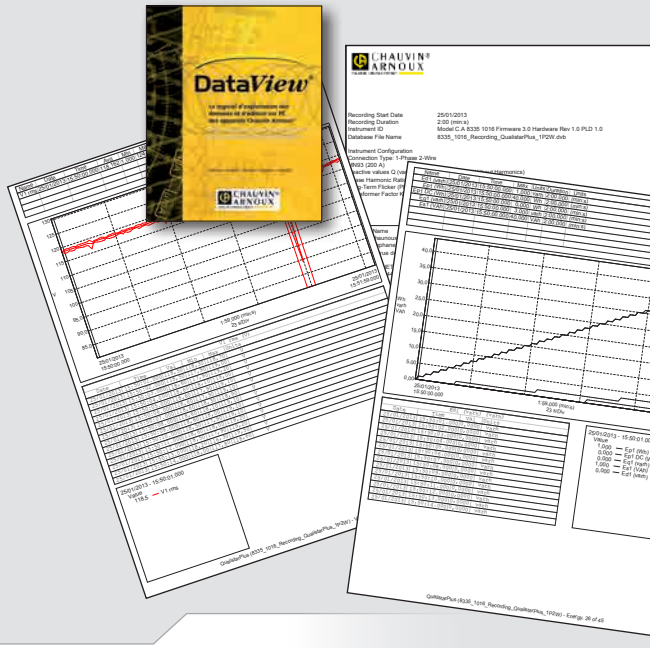
DataView®

The simple-to-use DataView® software automatically recognizes the instrument connected to the PC and opens the corresponding menu. Users have direct access to:

- database management
- EN 50160 report management

DataView® is compatible with other Chauvin Arnoux® products: Qualistar+ power analysers, C.A 8220 & C.A 8230 power analysers, F400 and F600 multimeter clamps, and other measuring instruments.

Minimum operating system requirements:
Windows® 7, 8 and 10.



EN 50160

The EN 50160 European standard regulates the quality of the voltage distributed by electricity suppliers. To define the quality of the voltage, a measurement campaign must be carried out over a 7-day period with an IEC 61000-4-30 instrument.

The measurements correspond to the different types of disturbances liable to affect the voltage:

voltage drops, outages, overvoltages, slow voltage variations, network frequency variations, voltage unbalance, harmonics, rapid voltage variations, flicker.

Once these measurements have been taken, the recorded data are analysed.
The PAT software automatically configures the instrument in compliance with the standard.
The Dataview® software can be used to generate the report automatically in compliance with the EN50160 standard.

Technical specifications

		C.A 8331	C.A 8333	C.A 8336	C.A 8436
Number of channels		3U / 4I		4U / 4I	
Number of inputs		4V / 3I		5V / 4I	
Voltage (TRMS AC+DC)		2 V to 1,000 V			
	Voltage ratio	up to 500 kV			
Current (TRMS AC+DC)	MN clamps	MN93: 500 mA to 200 AAC; MN93A: 0.005 AAC to 100 AAC			
	C193 clamp	1 A to 1,000 AAC			
	AmpFlex® or MiniFlex® clamps	100 mA to 10,000 AAC			
	PAC93 clamp	1 A to 1,300 AAC/DC			
	E3N clamp	50 mA to 100 AAC/DC			
	J93	50 A to 3,500 AAC / 5,000 ADC			
	Current ratio	up to 60 kA			
Frequency		40 Hz to 69 Hz			
Power values		W, VA, var, VAD, PF, DPF, cos φ, tan φ			
Energy values		Wh, varh, VAh, VADh			
Harmonics		yes			
	THD	yes, orders 0 to 50, phase			
	Expert mode	-	yes		
Transients		-	50	210	
Flicker	Pst	yes			
	Plt	-	-	Yes	
Inrush mode		-	yes on 4 periods	yes > 10 minutes	
Unbalance yes		yes			
Recording	Min/Max	yes			
	of a selection of parameters at the max. sampling rate	4 hours to 2 weeks	A few days to several weeks	2 weeks to several years	
Alarms		-	4,000 of 10 different types	10,000 of 40 different types	
Peak		yes			
Vectorial representation		automatic			
Display		Colour ¼ VGA TFT screen, 320 x 240, diagonal 148 mm			
Capture of screens and curves		12		50	
Electrical safety		IEC 61010 1,000 V CAT III / 600 V CAT IV			
Protection		IP53 / IK08			IP67
Languages		more than 27			
Communication interface		USB			
Battery life		up to 13 hours			
Power supply		9.6 V NiMH rechargeable battery or external mains charger			
Dimensions		240 x 180 x 55 mm			270 x 250 x 180 mm
Weight		1.9 kg			3.7 kg

STATE AT DELIVERY FOR THE C.A 8336, C.A 8333 AND C.A 8331

Models without sensors

One Qualistar+ analyser delivered with a bag for accessories, 4 x 4 mm banana voltage leads 3 m long (5 for CA 8336), 4 crocodile clips (5 for CA 8336), a set of 12-colour inserts/rings for identifying the leads and inputs, a scratch-proof screen-protection film (mounted), a USB cable, a mains power cable, a mains power pack, a safety datasheet, a multi-language operating manual CD and a PC data retrieval software CD (Power Analyser Transfer).

STATE AT DELIVERY FOR THE C.A 8436

Models without sensors: delivered with bag no. 21, USB cable, IP67 mains power cable, 5 x 3 m black IP67 BB196 banana leads, 5 lockable crocodile clips, 12-colour identification kit for the leads and inputs, scratchproof screen-protection film (mounted), safety datasheet, CD containing the multi-language operating manual and CD PC data retrieval software and CD containing PC data retrieval software (Power Analyzer Transfer).

References for ordering

C.A 8336 alone P01160591

C.A 8333 alone P01160541

C.A 8331 alone P01160511

C.A 8436 alone P01160595

Accessories and replacement parts

MN93 clamp P01120425B
MN93A clamp P01120434B
MiniFlex® MA193, 250 mm P01120580
MiniFlex® MA193, 350 mm P01120567
MiniFlex® MA196, 350 mm IP67 ..... P01120568
PAC93 clamp P01120079B
AmpFlex® A193 450 mm clamp P01120526B
AmpFlex® A193 800 mm clamp P01120531B
AmpFlex® A196, 610 mm IP67 clamp P01120554
C193 clamp P01120323B
E3N clamp P01120043A
E3N Adapter P01102081
E3N mains power pack P01120047
J93 clamp P01120110
Battery pack P01296024
ESSAILEC casing P01102131
Reeling Box P01102149
PA31ER mains adapter P01102150

Qualistar screen film P01102059
Set of id. rings/inserts P01102080
Set of caps *(C.A 8436)* P01102117
Set of 5 x 3 m IP67 (BB196) banana leads P01295479
Carrying bag no. 21 ..... P01298055
Carrying bag no. 22 ..... P01298056
C.A 8436 Banana mains cable P01295496
USB-A USB-B lead P01295293
5 A box P01101959
Mains power pack *(C.A 8331-33-35-36)* P01102057
IP67 mains lead *(C.A 8436)* P01295477
Dataview® Software P01102095
Lockable crocodile clips (x 5) P01102099
Kit containing 5 banana leads, 5 crocodile clips and 1 set of coloured rings P01295483
Kit containing 4 banana leads, 4 crocodile clips and 1 set of coloured rings P01295476

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CHAUVIN ARNOUX GROUP

FRANCE
Chauvin Arnoux
190, rue Championnet
75876 PARIS Cedex 18
Tel: +33 1 44 85 44 38
Fax: +33 1 46 27 95 59
export@chauvin-arnoux.fr
www.chauvin-arnoux.com

UNITED KINGDOM
Chauvin Arnoux LTD
Unit 1 Nelson Ct, Flagship Sq, Shaw Cross Business Pk
Dewsbury, West Yorkshire - WF12 7TH
Tel: +44 1924 460 494
Fax: +44 1924 455 328
info@chauvin-arnoux.co.uk
www.chauvin-arnoux.com

MIDDLE EAST
Chauvin Arnoux Middle East
P.O. BOX 60-154
1241 2020 JAL EL DIB - LEBANON
Tel: +961 1 890 425
Fax: +961 1 890 424
camie@chauvin-arnoux.com
www.chauvin-arnoux.com

For assistance and ordering