CHAUVIN ARNOUX

CA 922 - CA 942

Oscilloscopes with isolated channels

SIMPLE - PRACTICAL - VERSATILE - EFFECTIVE

3 in 1

- 20 or 40 MHz oscilloscope
- Double 8,000-count multimeter
- Double harmonic analyser

Optimized 3.5" colour LCD screen for maximum visibility

Multilingual interactive online help

Data recording and recovery on PC

Practical with its USB communication using the SCPI protocol

Stand-alone, powered by NiMH rechargeable battery with USB chargerB

HANDSCOPE

CONCEPTION FABRICATION FRANÇAISE

Eco Conception

600 V CAT III

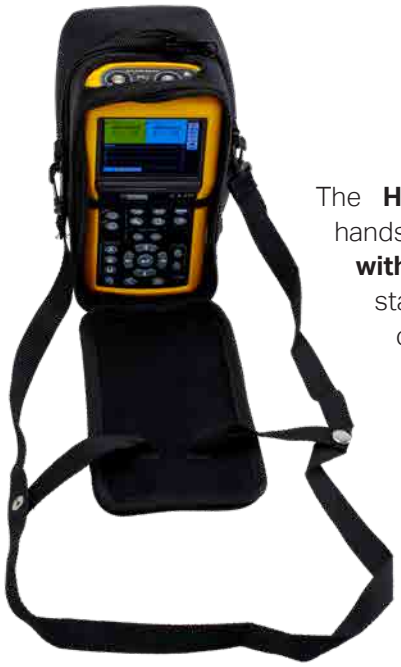
Measure up

HANDSCOPE portable oscillo

ERGONOMICS

Developed as on-site measuring tools, the **HANDSCOPE** oscilloscopes are particularly easy to use. The shockproof IP54 elastomer casing fits perfectly in one hand. The command keys on the front panel are easily accessible, even when wearing safety gloves, with the keys grouped by function. Multilingual interactive help is available to assist users in doubt without having to refer to the user's manual.

The **colour screen** is particularly easy to read and the **LED backlighting** helps to limit the **HANDSCOPE's** power consumption, with measurement remaining possible while charging..



The **HANDSCOPE's** essential feature, hands-free use, is facilitated by the **bag with neck-strap** and the magnetized stand supplied for fastening on metal cabinets.

APPLICATIONS

Compact and fitting in one hand, the **HANDSCOPES** are ideal for operations on electrical installations in the field and general maintenance. Thanks to its isolated channels, users can measure in total safety without any particular precautions. The **HANDSCOPE** is a multifunction measuring instrument (Oscilloscope – Multimeter – Harmonic Analyser) which can be used to Measure – Record and then Analyse the results on a PC with the dedicated SX-METRO software.

- measurement on PWM variable speed drive with display of the waveform in oscilloscope mode,
- power measurement in multimeter mode
- analysis of mains supply disturbances with harmonic analysis

The same connection technology for all the modes: 2 BNC inputs

Accessories: Probe or BNC/banana adapter supplied

oscope with isolated channels

PWM MEASUREMENT KIT

For stable measurements on signals «seen» by the motor at the output from the variable speed drive, a PWM Kit is available.

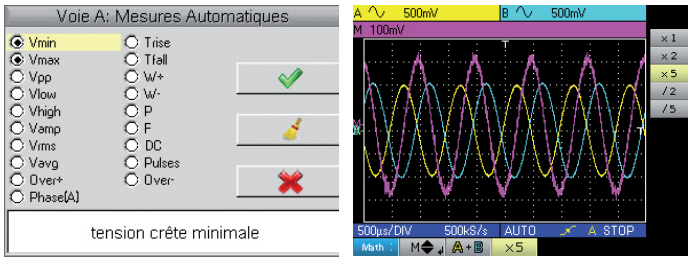
The kit comprises:

- An MLI01 low-pass sensor
- An E27 AC/DC current clamp

PERFORMANCE

COMPLETE OSCILLOSCOPE

On each of the **two isolated channels**, it is possible to select and display automatic measurements chosen among the 19 proposed (Amplitude, Time or Phase). In addition, **MATH** functions can be used to produce a representation over time of a signal derived from the channels by means of a mathematical operation (+,-,x,/ inversion) with automatic scaling.



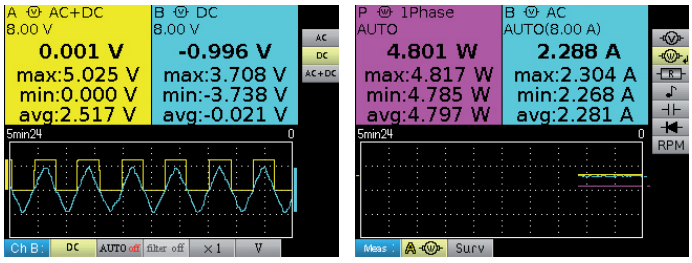
The **Autoset** of the channels is optimized for **synchronization of the signal parameters.** The waveform display can be stabilized very simply by pressing a single "magic" key.

Fast Autoset in <5 s, range >10 Hz from 10 mVpp to 400 Vpp

With its simple or complex edge or pulse triggering and associated HF or LF or Noise filters to optimize display of the waveform, the **HANDSCOPE** offers simple, effective tools which match your needs.

To observe rapid or noise-affected phenomena, several types of acquisition are available: peak detect, averaging or envelope, as well as a time-based zoom.

TWO INDEPENDENT 8,000-COUNT DIGITAL MULTIMETERS



CJust as for the three instrument modes, a single press on the dedicated key gives access to the multimeter mode allowing you to measure AC, DC and AC+DC voltages and currents, resistance, continuity, capacitance, frequency, power (combination of two measurement channels), temperature (K thermocouple or infrared sensor) and motor rotation speed (optical tachometer). The instrument can also be used to test diodes and components.

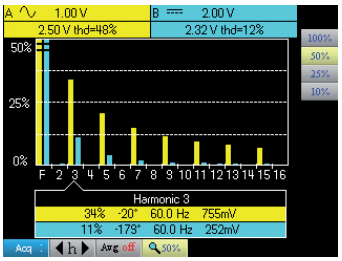
Furthermore, power measurement on single-phase or balanced three-phase systems enables you to determine consumption and observe the trend stored as a .txt file or .BMP screenshot.

2 essential modes for a professional multimeter:

- **the surveillance mode can be used to measure the MAX, MIN and AVG values**
- **the relative mode, which gives the relative value, i.e. the difference between the relative value and real value and the deviation in %.**

HARMONIC ANALYSER

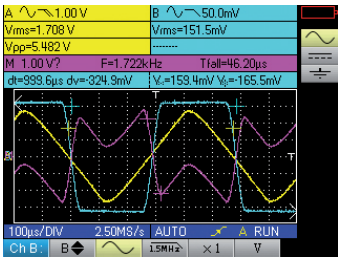
Harmonic analysis is performed on **2 channels** up to the 31st order, with a fundamental frequency between 40 and 450 Hz. At the same time, the **HANDSCOPE** measures values of the total VRMS voltage, the THD and the harmonic order selected (%fundamental, phase, frequency, VRMS). This function helps to improve analysis performance and, above all, measurement when the level of a harmonic order is greater than the level of the fundamental.



Screen optimization: the menus disappear automatically if there is no operator action on the keyboard for 20s; you lose nothing on the screen and the waveform view is displayed across the whole width of the screen.

DATA STORAGE – COMMUNICATION & PC SOFTWARE

The **HANDSCOPE** is equipped with an internal memory for saving configurations and recording traces and acquisitions in multimeter mode (2,700 measurements over a period from 5 minutes to one month). It can communicate with a PC via an optically-isolated USB interface.



Using this interface and the SX-METRO software supplied, users can download stored measurements and traces for processing on the PC and export them in formats compatible with office application suites. They can also display the measurements in progress on the **HANDSCOPE** in real time and manage its configurations. In addition, the multimeters' **SX-DMM PC software** can be used to manage the **HANDSCOPE's** multimeter function to process and analyse the data very easily and generate measurement reports.

TECHNICAL SPECIFICATIONS	CA 922	CA 942
HUMAN-MACHINE INTERFACE		
Type of display	3.5" colour TFT – Resolution 320x240 –LED backlighting	
Display mode	2,500 real acquisition points on screen	
On-screen display of curves	2 curves + 2 references + memory trace or mathematical calculation	
Commands	Direct adjustments on front panel & on-screen menus via browser (main & secondary without «hidden menus»)	
Interactive help function	14 languages: French, English, German, Spanish, Italian, Swedish, Romanian, Russian, Finnish, etc.	
OSCILLOSCOPE MODE		
VERTICAL DEFLECTION		
Bandwidth	20 MHz	40 MHz
Bandwidth limieter	1,5 MHz, 5 kHz	
Number of channels	2 totally-isolated channels	
Input impedance	1 MΩ ±0.5%, approx. 17 pF	
Maximum input voltage	600 V CAT III – Derating -20 dB per decade from 100 kHz	
Vertical sensitivity	5 mV to 200 V/div	
HORIZONTAL DEFLECTION		
Sweep speed	25 ns/div to 200 s/div –Roll mode from 100 ms to 200 s/div	
Horizontal zoom	Zoom coefficient: x1, x2, x5	
TRIGGERING		
Mode	Automatic, triggered, one-shot & Triggered Roll	
Type	Edge, pulse width (20 ns – 20 s)	
Coupling	AC or DC (depending on coupling of triggering channel)), HF, LF or noise rejections	
Sensitivity	≤1.2 divisions p-p up to 20 MHz	≤1,2 divisions p-p up to 40 MHz
DIGITAL MEMORY		
Maximum sampling rate	2 GS/s in ETS mode – 50 MS/s in one-shot mode on each channel	
Vertical resolution	9 bits	
Memory depth	2,500 points per channel	
User memory	2 MB for file storage: trace (.trc), text (.txt), configuration (.cfg), image files (.bmp)	
GLITCH mode	Duration ≥20 ns – 1,250 Min/Max pairs	
Display modes	Envelope, Averaging (Factors 2 to 64) and XY (vector)	
OTHER FUNCTIONS		
MATH functions	Channel inversion, addition, subtraction, multiplication and division (adjustable scaling)	
Cursor measurements	2 cursors: V, T, dV, dt simultaneously – 4-digit display resolution	
Automatic measurements	18 time-based or level measurements and Phase measurement	
MULTIMETER MODE		
General specificationss	2 channels, 8,000-count display + min/max bargraph – Graphical recording of 2,700 measurements (5 min to 1 month)	
Operating modes	Absolute or relative display (absolute, deviation, rel, rel%) – Monitoring (instantaneous, Min, Max, Avg)	
AC, DC and AC+DC voltages	Ranges From 600 mV to 600 VRMS, 800 mV to 800 VDC –VDC Accuracy 1% Reading +20D –50 kHz bandwidth	
Resistance	Range from 80 Ω to 32 MΩ - accuracy 2%R+10D –10 ms quick continuity test	
Capacitance	Ranges from 5 nF to 5 mF – basic accuracy 2%R+10D	
Other measurements	Frequency, rotation speed, 3.3 V diode test, temperature measurement (by K Thermocouple and infrared sensor)	
POWER		
Measurements	Single-phase and balanced three-phase active power values (with or without neutral), simultaneous display of current – PF	
HARMONIC ANALYSER MODE		
Multi-channel analysis	2 channels, 31 orders, frequency of fundamental from 40 to 450 Hz	
Simultaneous measurements	Total VRMS, THD and selected order (%fundamental, phase, frequency, VRMS)	
GENERAL SPECIFICATIONS		
Screenshots	Up to 100 files in standard «.bmp» format, viewable on the instrument	
PC communication	Isolated optical USB interface – SX-Metro PC application available as an option + SX-DMM for multimeter mode	
Power supply	6 x LR6 batteries or 6 x AA NiMH rechargeable batteries – Battery life of up to 8.5 hrs	
Safety / EMC	Safety as per IEC61010-1 Ed3 – 600 V CAT III – EMC as per EN61000-3, 2001 & EN61326-1, 2006	
Mechanical specifications	214 x 110 x 57 mm – 1.2 kg with batteries – moulded elastomer casing	
Warranty	3 years	

STANDARD STATE AT DELIVERY

CA 922: Instrument reference **P01192200** + 2 BNC-Banana adapters + 2 sets of R/B moulded straight-elbowed PVC 1.5 m + 2 sets of R/B crocodile clips + 2 sets of CAT IV 1000V R/B test probes + Jack-USB cable + USB WALLPLUG + USB optical cable + Bag + Paper Quick Start Guide + Safety datasheet + test report + NiMH battery datasheet

CA 942 : Instrument reference **P01194200** + 1 BNC-Banana adapter + 1 set of R/B moulded straight-elbowed PVC 1.5 m + 1 set of R/B crocodile clips + 1 set of CAT IV 1000V R/B test probes + Jack-USB cable + USB WALLPLUG + USB optical cable + Bag + Paper Quick Start Guide + Safety datasheet + test report + NiMH battery datasheet

Accessories

- A PWM kit = one MLI01 filter + one E27N clamp under the reference **P01102188**
- The **HX0099** calibration software is linked to this project
- Communication kit with jack/USB cable and charger USB **P01103080**

FRANCE
Chauvin Arnoux
12-16 Rue Sarah Bernhardt
92600 Asnières-sur-Seine
Tél. : +33 1 44 85 44 85
Fax : +33 1 46 27 73 89
info@chauvin-arnoux.fr
www.chauvin-arnoux.fr

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

CHAUVIN ARNOUX GROUP