

HANDSCOPE

The only oscilloscope with isolated channels on the market which fits into one hand



- ✓ **TWO ISOLATED CHANNELS**
- ✓ **THREE INSTRUMENTS IN ONE**
 - 20 or 40MHz oscilloscope
 - Double 8000-count TRMS Multimeter / Power Analyzer
 - Harmonic Analyzer
- ✓ **3.5" COLOR LCD SCREEN LED TECHNOLOGY**
- ✓ **INTEGRATED INTERACTIVE MULTILINGUAL HELP FUNCTION**
- ✓ **RECORDING**
- ✓ **COMMUNICATION VIA ISOLATED USB SCPI PROTOCOL**



matrix® A Brand of



CHAUVIN ARNOUX GROUP

HANDSCOPE

Portable Oscilloscopes with Isolated Channels

✓ ERGONOMICS

Developed as on-site measurement tools, **HANDSCOPE** oscilloscopes are very simple to use. The elastomer casing, which is shockproof with IP54 protection, fits comfortably in one hand. The control keys on the front panel are easily accessible even when you are wearing safety gloves. Multilingual interactive help is available to assist users without having to refer to the user manual.

The color screen is easy to read and its LED backlighting helps to limit the **HANDSCOPE**'s energy consumption. The **HANDSCOPE** can also be used "hands-free", an essential feature, with the bag and neck strap delivered with the instrument.



✓ APPLICATIONS

So compact that it fits comfortably in one hand, the **HANDSCOPE** is ideal for operations in the field on electrical installations and for general maintenance tasks. Thanks to its isolated channels, users can measure in total safety without any special precautions. The **HANDSCOPE** is a multi-function measurement instrument (Oscilloscope – Multimeter – Harmonic Analyzer) allowing you to measure, record and analyze the results on a PC.

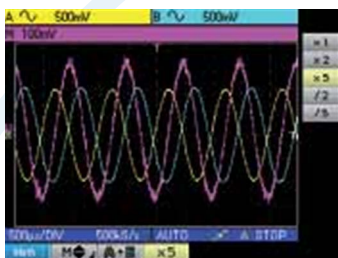
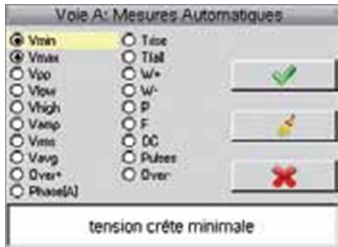


Here, the technician is working on the process of a machine controlling component magazines.



Operational testing on the electronic command-control part of a machine-tool.

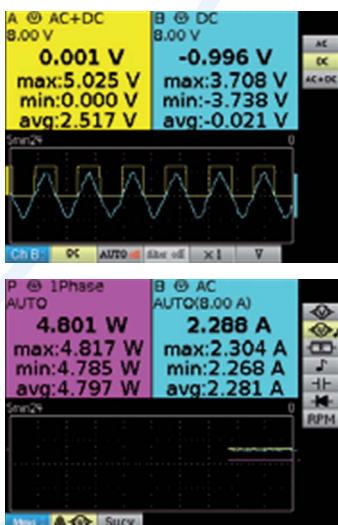
✓ HIGH-PERFORMANCE OSCILLOSCOPE



On each of the two isolated channels, it is possible to display automatic measurements selected from the 19 choices proposed (Amplitude, Time or Phase). In addition, MATH functions can be used to calculate the time representation of a signal derived from the channels by means of a mathematical operation (+, -, x, / inversion) with automatic scaling. With the Trigger function, you can use a single menu to program

multiple and advanced triggers with possibilities for manual selection of the mode (auto, trig, single), level, filters (HF/LF), edges, etc. Also located on the front panel, the "Acq" key gives you access to the menu for selecting the Peak, Envelope, Averaging and XY display modes, as well as the zooms for optimizing the screen display. With the Peak detection or Glitch function, meanwhile, you can detect short-term disturbance pulses which may occur between 2 sampling points.

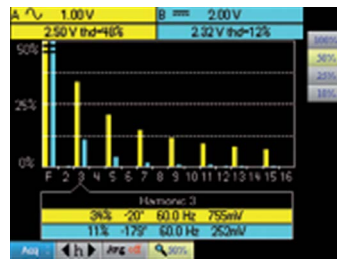
✓ 2 INDEPENDENT 8000-COUNT TRMS DIGITAL MULTIMETERS



Just as for the three instrument modes, a single press on the dedicated key gives you access to the multi-meter mode, so that you can measure AC, DC and AC+DC current and voltage, resistance, continuity, capacitance, frequency and power (combination of two measurement channels), as well as temperature (K thermocouple or infrared probe) and motor rotation speed (optical tachometer). You can also use it to test diodes and components. It is possible to display these measurements

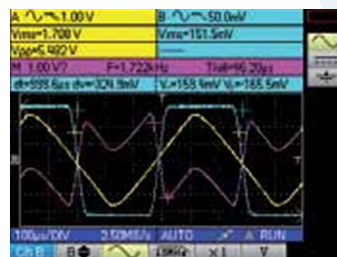
as a trend curve (2700 over a period from 5 min to one month). Two essential modes for professional multimeters are also provided: the monitoring mode for measuring the MAX, MIN and AVG values and the relative mode for measuring the relative value, the delta between the relative and real values and the deviation in %.

✓ HARMONIC ANALYZER



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

✓ STORAGE - COMMUNICATION & PC SOFTWARE



The **HANDSCOPE** communicates with a PC via an isolated optical USB interface. The optional SX-METRO data processing software can be used to:

- View curves based on stored files
- Display curves on a PC in real time
- Control the oscilloscope via the PC
- Import curves stored in the oscilloscope's memory or as "image" files
- Store curves in text format on the PC
- Transfer data or curves into Excel.

Users can insert a graph of data from the signal in a report produced using Word (e.g. test report). They can also use Excel's functions to perform additional calculations on the samples in the curve.

TECHNICAL SPECIFICATIONS	OX 5022	OX 5042
Type of display	3.5" color TFT LCD screen – Resolution 320x240 –LED backlighting	
Display mode	2500 real acquisition points on screen	
Display of curves on screen	2 curves + 2 references + memory trace or mathematical calculation	
Commands	Direct adjustments on front panel & on-screen menus via browser (principal & secondary without “hidden menus”)	
Integrated interactive help function	11 languages: French, English, German, Spanish, Italian, Swedish, Rumanian, Russian, Finnish, Polish, Dutch	
OSCILLOSCOPE MODE		
Vertical deflection		
Bandwidth	20MHz	40MHz
Bandwidth limiter	1.5MHz, 5kHz	
Number of channels	2 totally-isolated channels	
Input impedance	1MΩ ±0.5%, approx. 17pF	
Maximum input voltage	600V CAT III – Derating -20dB per decade from 100kHz	
Vertical sensitivity	5mV to 200V/div	
Horizontal deflection		
Sweep speed	25ns/div to 200s/div –Roll Mode from 100ms to 200s/div	
Horizontal zoom	Zoom factor: x1, x2, x5	
Triggering		
Mode	Automatic, triggered, one-shot & triggered Roll	
Type	Edge, pulse width (20ns – 20s)	
Coupling	AC or DC (depending on the coupling of the triggering channel) - HF, LF or noise rejection	
Sensitivity	≤ 1.2 divisions p-p up to 20MHz	≤ 1.2 divisions p-p up to 40MHz
Digital memory		
Maximum sampling rate	2GS/s in ETS mode – 50MS/s in one-shot mode on each channel	
Vertical resolution	9 bits	
Memory depth	2500 points per channel	
User storage	2MB for storing files: trace (.trc), text, (.txt), configuration (.cfg), image files (.bmp)	
GLITCH mode	Duration ≥ 20ns – 1250 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 or level measurements and phase measurement	
MULTIMETER MODE		
General specifications	2 channels, 8000-count display + min/max bargraph – Graphic recording of 2700 measurements (5 min to 1 month)	
Operating modes	Absolute or relative display (absolute, deviation, ref, ref%) – Monitoring (instantaneous, Min, Max, Avg)	
AC, DC and AC+DC voltages	Ranges from 600mV to 600VRMS, 800mV to 800VDC – accuracy for VDC 1% reading+20D –50kHz bandwidth	
Resistance	Range from 80Ω to 32MΩ - accuracy 2%R + 10D –10ms quick continuity test	
Capacitance	Ranges from 5nF to 5mF – basic accuracy 2%reading+10D	
Other measurements	Frequency, rotation speed, 3.3V diode test, temperature measurement (with K thermocouple or infrared probe)	
POWER		
Measurements	Single-phase and balanced three-phase active power values (with or without neutral), simultaneous display of current	
HARMONIC ANALYZER MODE		
Multi-channel analysis	2 channels, 31 orders, fundamental frequency from 40 to 450Hz	
Simultaneous measurements	Total VRMS, THD and selected order (%fundamental, phase, frequency, VRMS)	
GENERAL SPECIFICATIONS		
Screenshots	Up to 100 file in standard “.bmp” format, viewable on the instrument	
PC communication	Isolated optical USB interface –“SX-Metro” PC application software available as an option (version CK)	
Power supply	6 LR6 or 6 AA NiMH batteries – Battery life up to 8 hrs 30 min – Universal power adapter isolated from the channels – Quick charging in 2 hrs 30 min	
Safety / EMC	Safety according to IEC61010-1 Ed3 – 600 V CAT III – EMC according to EN61000-3, 2001 & EN61326-1, 2006	
Mechanical specifications	214x110x57mm – 1.2kg with batteries – moulded elastomer casing, IP54 protection	
Warranty	3 years	

Shipping Contents

1 oscilloscope delivered with 1 "hands-free" soft carrying case, set of 2 color-coded (red/black) 5ft silicone leads, set of 2 color-coded (red/black) alligator clips, set of 2 color-coded (red/black) needle tip probes, 2 10:1 600V/BNC-M probes, 100 to 240V power supply (12V output), US power plug adapter (115/230V), 4mm banana plug adapter, optical USB cable, six NiMH 1.2V rechargeable batteries, SX-METRO software on CD-ROM, usermanual on CD-ROM.

Accessories

Probe - 10:1 600V BNC Male	5000.50
Leads - set of 2 5ft w/alligator clips color-coded (red/black).....	2140.62
Leads - set of 2 alligator clips color-coded (red/black)	2152.16
Leads - set of 2 needle tip color-coded (red/black) w/4mm right-angle plug	2154.74
Adapter - banana (female) to BNC (male) (XM-BB) (600V CAT III)	2118.46

Ordering Information

OX5022-CK (2150.20): 1 oscilloscope, 2 x 20MHz + USB communication
OX5042-CK (2150.21): 1 oscilloscope, 2 x 40MHz + USB communication

