metrix®

Portable Digital Oscilloscope

OX 5022 / OX 5042

HANDSCOPE

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

- ✓ **TWO ISOLATED CHANNELS**
- ✓ **THREE INSTRUMENTS IN ONE**
  - 20 or 40 MHz oscilloscope
  - Double 8,000-count TRMS multimeter / Power analyser
  - Harmonic analyser
- ✓ **3.5" COLOUR LCD SCREEN LED TECHNOLOGY**
- ✓ **INTEGRATED INTERACTIVE MULTILINGUAL HELP FUNCTION**
- ✓ **RECORDING**
- ✓ **COMMUNICATION VIA ISOLATED USB SCPI PROTOCOL**

Eco Conception

600 V CAT III

metrix® A Brand of CHAUVIN ARNOUX GROUP

HANDSCOPE Portable Oscillos

✓ 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 operating manual.
The colour screen is particularly 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

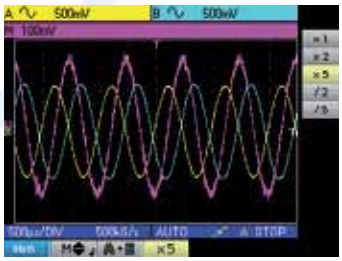
So compact that it fits comfortably in one hand, the **HANDSCOPE** is ideal for operations in the field on electrical installations and for general maintenance tasks. Thanks to its isolated channels, users can measure in total safety without any special precautions. The **HANDSCOPE** is a multi-function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

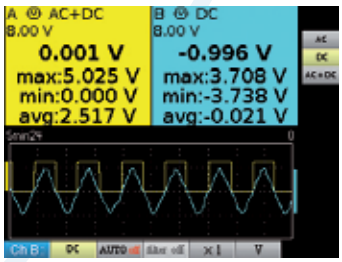
scopes with Isolated Channels

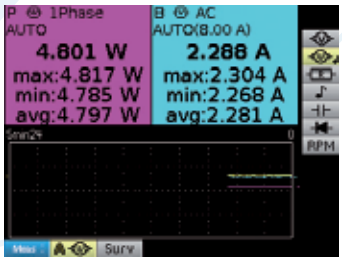
✓ HIGH-PERFORMANCE OSCILLOSCOPE



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 8,000-COUNT TRMS DIGITAL MULTIMETERS

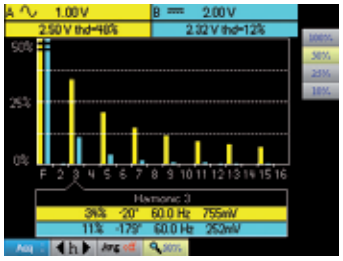




Just as for the three instrument modes, a single press on the dedicated key gives you access to the multimeter mode, so that you can measure AC, DC and AC+DC current and voltage, resistance, continuity, capacitance, frequency and power (combination of two measurement channels), as well as temperature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

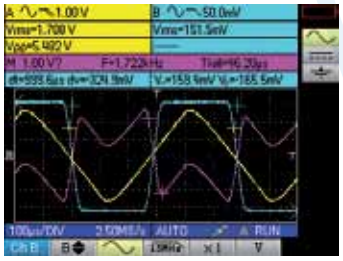
It is possible to display these measurements as a trend curve (2,700 over a period from 5 min to one month). Two essential modes for professional multimeters are also provided: the monitoring mode for measuring the MAX, MIN and AVG values and the relative mode for measuring the relative value, the delta between the relative and real values and the deviation in %.

✓ HARMONIC 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 the total VRMS, the THD and the selected harmonic order** (%fundamental, phase, frequency and VRMS).
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 le 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.

HandScope Portable Oscilloscope with Isolated Channels

TECHNICAL SPECIFICATIONS	OX 5022	OX 5042
MAN-MACHINE INTERFACE		
Type of display	3.5" colour TFT LCD screen – Resolution 320x240 –LED backlighting	
Display mode	2,500 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	20 MHz	40 MHz
Bandwidth limiter	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 -20dB 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 factor: 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 the coupling of the triggering channel) - HF, LF or noise rejection	
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 storage	2 MB for storing files: 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 or level measurements and phase measurement	
MULTIMETER MODE		
General specifications	2 channels, 8,000-count display + min/max bargraph – Graphic recording of 2,700 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 600 mV to 600 VRMS, 800 mV to 800 VDC – accuracy for VDC 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%reading+10D	
Other measurements	Frequency, rotation speed, 3.3 V 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 ANALYSER MODE		
Multi-channel analysis	2 channels, 31 orders, fundamental frequency from 40 to 450 Hz	
Simultaneous measurements	Total V_{RMS}, THD and selected order (%fundamental, phase, frequency, V_{RMS})	
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 mains 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 – 1.2 kg with batteries – moulded elastomer casing, IP54 protection	
Warranty	3 years	

State at delivery

Version C : 1 oscilloscope delivered with 1 probe (1/10, 1000 V), 1 BNC/Banana adapter, 1 set of banana leads, 1 mains adapter, 1 set of 6 AA NiMh batteries, 1 "hands-free" bag, 1 CD-Rom containing 1 operating manual and 1 programming manual

Version CK : same as version C plus 1 optical USB communication cable and 1 CD containing the SX-METRO/P software and USB cable drivers

References

OX5022-C : 1 oscilloscope, 2 x 20 MHz
OX5022-CK : 1 oscilloscope, 2 x 20 MHz + USB communication
OX5042-C : 1 oscilloscope 2 x 40 MHz
OX5042-CK : 1 oscilloscope, 2 x 40 MHz + USB communication

Accessories

Current clamp, 20 AAC/DC - 100 mV/A HX0102
C.A 1871 infrared temperature sensor P01651610Z
C.A 801 single thermocouple adapter..... P01652401Z
C.A 803 differential thermocouple adapter..... P01652411Z
C.A 1711 tachometer P01102082

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