OX 5022B – OX 5042B

OSCILLOSCOPES WITH ISOLATED CHANNELS

SIMPLE - PRACTICAL - VERSATILE - EFFECTIVE

For industrial maintenance

3 In 1

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

3.5» colour LCD screen with LED technology

Multilingual interactive online help

Recording

USB communication using the SCPI protocol

Powered by NiMH rechargeable battery with USB charger

600 V CAT III

Eco Conception

Measure up

HandScope portable

Ergonomics

Developed as on-site measuring tools for inclusion in the SCOPIX IV family of expert portable oscilloscopes, Handscope oscilloscopes are particularly easy to use. The shockproof 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 (channel A yellow, channel B blue and MATH channel mauve) 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.

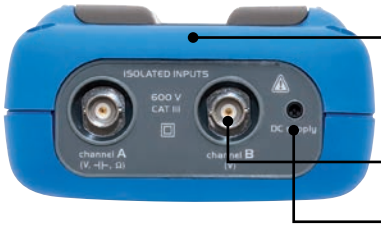
The keypad front panel is grey with keys screen-printed in white for easy reading.

Applications

Compact and fitting in one hand, the Handscopes are ideal for operations on electrical installations in the field and general maintenance. They offer a battery life of 8.5 hours.

Thanks to their 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.



2 isolated 600V Cat III channels from 1 mV to 600 V
Application: measurement on PWM variable speed drive with display of the waveform in oscilloscope mode, power measurement in multimeter mode and analysis of mains supply disturbances with harmonic analysis

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

Alimentation par fiche jack (câble fourni), batterie Ni-MH et chargeur USB 5VD/2A fournis

PWM measurement kit

To obtain a stable measurement on signals seen by the motor at the variable speed drive output, a PWM kit is available. It can be used for measurements on PWM variable speed drives (switching frequency 4 kHz), and comprises:

- **A sensor with a 3rd-order 1/100 low-pass filter**
- **An E27 AC/DC current clamp (80 A, 100 kHz)**

oscilloscope with isolated channels

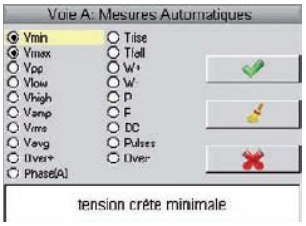
Performance

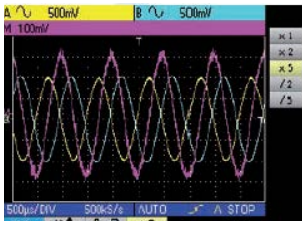
Complete oscilloscope

On each of the two isolated channels (A and B), it is possible to select and display automatic measurements chosen among the 19 choices 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.



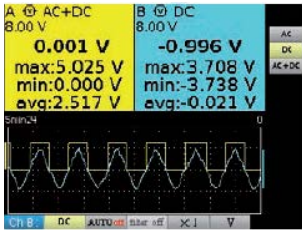


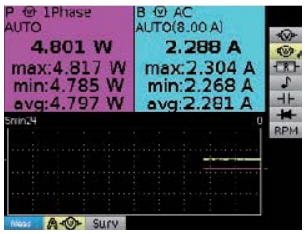
Harmonic analyser

Harmonic analysis is performed on 2 channels up to the 31st order, with a fundamental frequency between 40 and 450 Hz.

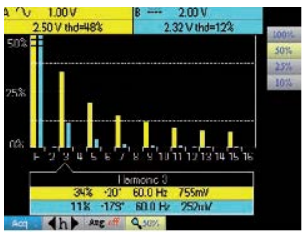
At the same time, the Handscope measures values of the total VRMS voltage, the THD and the harmonic order selected (%fundamental, phase, frequency, VRMS).

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, but nothing on the screen is lost.



Two independent 8,000-count digital multimeters

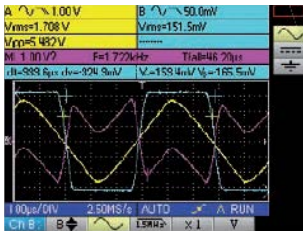
Just as for the three instrument modes, a single press on the dedicated key gives access to the multimeter mode allowing you to measure AC, DC and AC+DC voltages and currents, resistance, continuity, capacitance, frequency, power (combination of two measurement channels), temperature (K thermocouple 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 %.**

The calibration software (option) is a PC program. The oscilloscope can then be calibrated step by step or per channel. The data are backed up in the instrument.



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**, 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.

HandScope portable oscilloscope with isolated channels

TECHNICAL SPECIFICATIONS	OX5022B	OX5042B
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 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 -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	19 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	
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 software available as an option	
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	

State at delivery

One OX5022B or OX5042B delivered with (depending on model):

- 2/1 BNC-Banana adapters
- 2/1 sets of straight-elbowed moulded PVC banana leads 1.5 m long (red/black)
- 2/1 sets of red-black crocodile clips
- Quick Start Guide on paper (5 languages) / access to User's Manual via QR Code
- 1 x 1/10 600V probe for OX5042B
- 2/1 sets of red/black CAT IV 1000V test probes
- Jack-USB lead + USB WALLPLUG
- USB optical cable
- Bag

References

OX5022B: 1 oscilloscope 2 x 20 MHz
OX5042B: 1 oscilloscope 2 x 40 MHz

Accessories & replacement parts

PWM kit = MLI01 filter + E27N clamp under the reference P01102188
Calibration software HX0099
Power supply kit with jack/USB cable and USB charger P01103080
SX METRO software ..... SX-METRO/P

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