ERGONOMICS

The ergonomics of the **SCOPIX IV** portable oscilloscopes has been designed to simplify their use.

In a casing tailor-made to be as compact as possible, the external mechanical design of the **SCOPIX IV** makes it possible to integrate the hardware components in a very small volume, while the keypad benefits from a new technology developed in the automotive industry.

Identification of the channels and parameters

Each channel and the related parameters can be identified because they have an identical colour against a black background for simpler, quicker viewing.

Easy access via the touch screen

Intuitive pictograms are provided to facilitate their use, even with protective gloves.

Adjustable transport strap

This helps to optimize operation of the oscilloscope in your hand or on your shoulder when working in the field.
A stand is also available to vary the orientation of the oscilloscope when it is placed on a bench. The oscilloscope can be left without supervision thanks to the Kensington locking system

New keypad design for optimum user comfort

Configuration and display of the measurements are simple thanks to the accesses on the front panel in one of the 5 specific areas: **Utilities** (brightness, full screen, screenshot), **Measurements**, **Vertical**, **Horizontal**, **Trigger**.

Mains power supply or Li-Ion battery

TECHNOLOGY! To allow you to work in peace, there is no longer a fan: the heat is dissipated by conduction through the internal components of the SCOPIX IV models.

IP54
Casing protected against dust and water droplets

7'' WVGA wide colour TFT touch screen

This makes it easy to view and read the signals clearly. It also provides a screen resolution of 800 x 480 dpi with manual or automatic brightness.

Space for stowing the touch-screen stylus

Among the essential tools available, the stylus is equipped with a hook for the addition of a cord to make it captive, as required and one end is slightly flattened to prevent it from rolling when placed on a table or bench.

"Magic" Autoset button

Direct settings and set-up

Communication interfaces

These are isolated from one another and from the measurement channels. A dedicated compartment protected by a hatch contains all the different communication interfaces:

- USB host for communication with a PC
- wired RJ45 or WiFi for communication with a PC or printing via a network printer
- µSD card for data storage without transfer difficulties and upgrading of the instrument's firmware

Direct access to the zoom

ScopiX IV

APPLICATIONS

Electronic maintenance
The **OX 9304** model is ideal for electronics with its 300 MHz bandwidth, 4 x **600 V CAT III** isolated channels, advanced trigger functions, integrated FFT function, complex mathematical calculations on the curves, automatic measurements on 4 channels and the built-in WEB server.

Fieldbus maintenance
The "**bus**" **version** of the **SCOPIX IV** includes a function for testing the physical integrity of buses to ensure the physical quality of the fieldbuses (CAN, LIN, FLEXRAY, UART, SPI, etc.).

Industrial maintenance
The **OX 9062**'s large 7-inch screen, 60 MHz bandwidth, 2 x 600 V CAT III isolated channels and Harmonic Analyser and Multimeter modes make it ideal for industrial maintenance applications.

ACCESSORIES

PROBIX
ACCESSORIES

The accessories

The "plug and play" accessories are recognized automatically when they are connected. This means they can be implemented quickly and in total safety. It is also possible to connect BNC accessories and standard banana leads with the safety adapters supplied.

Interchangeable coloured collars can be used to link each accessory to the colour of its channel.
The sensors are powered and calibrated via the oscilloscope.
Some accessories even include three control buttons directly accessible on the probe to optimize your settings without any bother.

Identification of the accessories and management of safety

Once they have been hooked up, the probes and adapters are identified by the oscilloscope which retrieves their characteristics. Active safety is built-in, notably in the form of safety information and recommendations concerning the accessory used. All the accessories are powered directly from the oscilloscope.

Configuration of the channels and management of the sensors

The sensors' coefficients, scales and units are managed automatically, as is the configuration of the channels. Control buttons on the probes can be used to modify the settings of the channel to which they are connected. They also offer the functions accessible on the oscilloscope's front panel.

Probix functions:

- voltage measurements
  - by probe with different bandwidths and attenuation
  - by BNC or banana connections
- current measurements
  - by AC or AC/DC clamp
  - directly: banana connections
- temperature measurements
  - by K thermocouple sensor
  - by Pt100 sensor

Replacement accessories

HX0030B: Probix probe, 600 V CAT III
HX0034B: Probix clamp with round cable, 80A AC/DC 500 kHz
HX0179: µSD card (8 GB)
HX0080: 1 USB/µSD adapter + USB adapter
P01102155: PA40W battery charger-power pack-2 LI-ION batt.
HX0120: METRIX bag for SCOPIX IV
HX0121: set of 5 screen styluses for SCOPIX IV
HX0122: transport strap for SCOPIX IV

Communication isolated from the measurements for interfacing in total safety

Multiple communication interfaces

You can choose the type of communication to fit your requirements:

- Wired ETHERNET LAN network with integrated DHCP server for easy connection to your network, with the possibility of activating the WiFi radio link to communicate with a PC, tablet or smartphone using the dedicated interfaces.
- USB for interfacing with a PC: record, recall or load configurations.
- µSD > 8 GB, default storage, given priority over the 1 GB internal memory.

File management

Each of the signal traces can be displayed instantaneously as the reference by pressing a single key to obtain a comparison and immediate measurements of the deviation. Backups are possible in various formats for direct export into another standard application such as a "Windows" spreadsheet or word processor.
Using the front panel of the oscilloscope, it is also very simple to take screenshots in .PNG format, print out documents on a network printer and transfer or delete files in the file manager.

Storage possibilities per mode

	Type of file				
	setup.(cfg)	traces.(trc)	math.(fct)	meas.(txt)	screenshot.(png)
Oscilloscope mode	✓	✓	✓		✓
Multimeter mode	✓				✓
Logger mode	✓				✓
Harmonics mode	✓			✓	✓

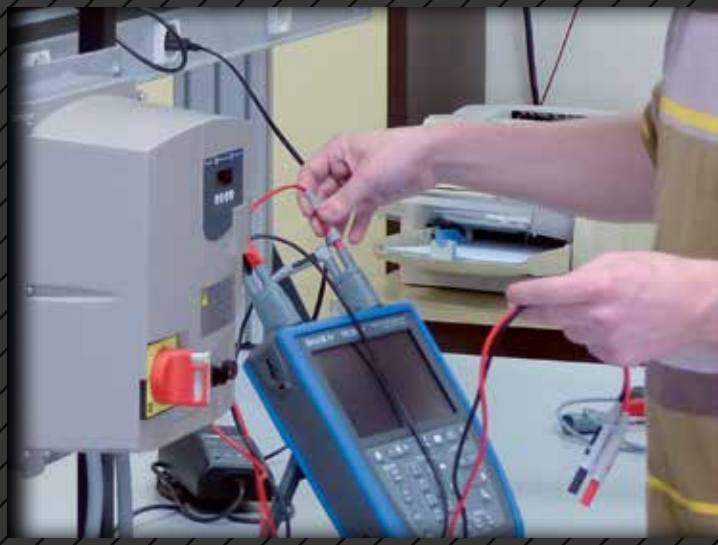
Data processing

- Using a viewer on the oscilloscope, recall of the screenshots and the curves stored in memory in the various modes
- On a PC, via a ScopeNet application in your web browser with USB or Ethernet connection: remote control, programming with SCPI commands

APPLICATIONS

Electrical cabinet

Training bench or measurement system



In the laboratory

4 MODES :

OSCILLOSCOPE
MULTIMETER
ANALYSER
RECORDER

The functions and performance levels of the **SCOPIX IV** have been improved:

- wider bandwidth up to 300 MHz
- new possibilities for triggering and recording
- increased storage capacity

And many other advantages...

Oscilloscope: trigger functions, automatic measurements, MATH functions

An OSCILLOSCOPE with complex trigger functions so that you only record what is necessary, while capturing all the faults.

The **OX 9000** models offer **advanced triggers which complement the main edge trigger options**: pulse width, counting, delay.

- The Delay mode enables you to observe any event with maximum resolution, even if it occurs a long time after effective triggering, even on 2 different channels.
- The Counting mode enables you to count the events before triggering, so that you can check the content of digital frames, for example. The trigger can be linked to a second "auxiliary" signal which is different from the "main" signal.

Comprehensive automatic measurements with cursors for precise analysis!
At the touch of a button, the Automatic Measurements window displays all 20 parameters of a signal or on each of the 4 channels. For unambiguous analyses, two H and V cursors can be used to view the part of the signal where the first automatic measurement was performed.
A specific measurement area can then be selected by framing it with manual cursors for more accurate, reliable results.
Direct comparison of two traces can be performed by checking the "reference memory deviation" box, so that these 20 signal parameters are displayed in terms of deviations.

The MATH functions

In oscilloscope mode, the MATH functions (1, 2, 3 and 4) allow you to define a mathematical function for each of the traces, along with vertical scaling with definition of the actual physical unit.

The mathematical editor is capable of displaying 4 calculated traces on which all the automatic or cursor measurements remain available. This means it is possible to examine the waveforms, such as the power (U x I), for example, and perform all the associated measurements.

A large number of operators are available, including +, -, x and / , as well as more complex operators such as sine, cosine, exponential, logarithm, square root, etc., at last opening the way for specific applications.

The real-time Fast Fourier Transform (FFT) for frequency decomposition of your signals on 4 channels

The FFT is used to calculate, from 2.5 kpoints upwards, the discrete representation of a signal in the frequency domain from its representation in the time domain. It is often particularly useful for arriving at an effective diagnosis during qualitative analysis of the signals:

- measurement of the different harmonics or distortion of a signal,
- analysis of a pulse response,
- search for the source of noise in the logic circuits,

Several weighting windows are available, as well as 2 representation modes: linear or logarithmic (scale in dB). The 2 cursors can then be used for precise measurements of the frequency lines, the levels and the attenuations, taking advantage of the 80 dB dynamic range allowed by the **12-bit / 2.5 GS/s conversion.**

The autoset makes it easier to obtain an optimum spectral representation to which a graphical zoom can be applied to analyse all the details of the spectrum.

PRACTICAL!

Possibility of viewing simultaneously on all 4 channels:

- waveform + FFT
- waveform + XY
- waveform + zoom

Analysis of the harmonics

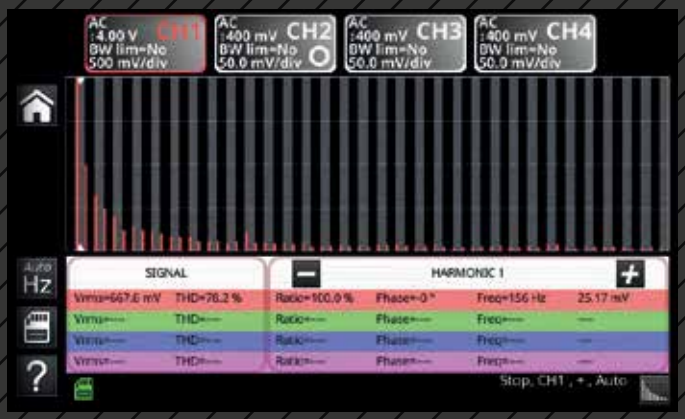
Harmonic analysis is performed on all 4 channels up to the 63rd order to comply with the requirements of the EN 50160 standard (THD on 50 orders minimum), with a fundamental frequency between 40 and 450 Hz.

It is possible to preselect the frequency of the fundamental for the standards (50 Hz, 60 Hz and 400 Hz).

This function helps to improve analytical performance and, above all, measurement when the level of a harmonic order is greater than the fundamental.

It is possible to view the harmonic analyses of two or four channels simultaneously: RMS level, harmonic distortion, harmonic frequency, phase of the harmonic in relation to the fundamental.

Harmonics



4 simultaneous channels

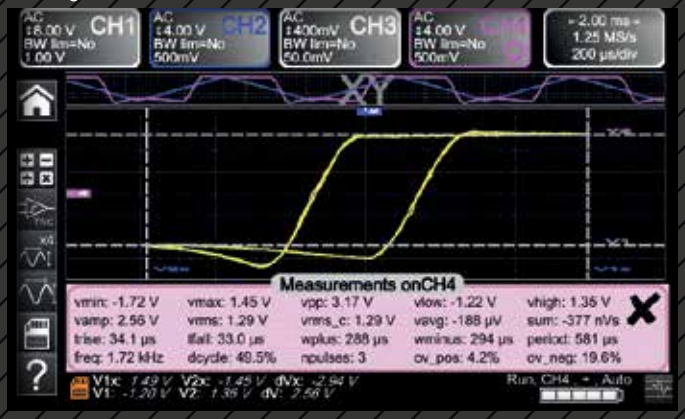
Multimeter

By simply selecting the dedicated pictogram, you can gain access to the multimeter mode without changing the measurement input channels. The OX9000 models offer a genuine 8,000-count TRMS digital multimeter with two or four channels which can perform the following measurements:

- amplitude (DC or AC voltage and current, power, temperature, etc.)
- resistance, continuity, capacitance
- component tests

Temperature is measured using the Pt 100 and Pt 1000 sensors or K thermocouples via the dedicated PROBIX sensors.

Lissajous: XY



Power available in Multimeter mode

The power measurements are proposed as follows with choice of the configuration:

- single-phase power
- three-phase power on balanced network without neutral
- three-phase power on balanced network with neutral
- 3-wire three-phase power (2-wattmeters method)

Measurement between H and V cursors: T1, T2, Dt, 1/Dt, V1, V2, dV, Ph

Recorder/logger

This is the mode for recording the trends in Multimeter mode. A genuine fast digital logger is provided inside the instrument to monitor the variations of physical or mechanical phenomena over time. It offers acquisition intervals as short as 40 µs between 2 measurements and recording can cover any period from 2 seconds to one month.

State at delivery: 1 SCOPIX IV oscilloscope delivered with a carrying bag, a PA40W-2 mains power pack/charger and 1 2P EURO mains power cable, 1 Li-Ion battery pack, 1 stylus, 1 Ethernet cable, 1 USB cable, 2 safety leads (red, black), 2 x Ø 4 mm test probes (red, black), 2 or 4 voltage probes depending on models, 1 µSD card (8 GB), 1 USB/ µSD adapter, 1 hand strap, 1 PROBIX BANANA, USB installation procedure for use of ScopeNet data export software on CD-ROM, 1 PDF user's manual (>5 languages), 1 start-up guide on paper and 1 safety datasheet in 20 languages.

TECHNICAL SPECIFICATIONS	OX 9062	OX 9102	OX 9104	OX 9304
HUMAN-MACHINE INTERFACE				
Type of display	7" WVGA colour TFT LCD touch screen, 800x480 – LED backlighting (adjustable standby mode)			
Different display mode	2,500 real acquisition points on screen - Vectors with interpolation			
Display of curves on screen	4 curves + 4 references – Split Screen & Full Screen modes			
Screen commands	Touch screen – ANDROID-type icons and graphical commands – customizable channel colours			
Choice of language	15 complete languages, menus & online help			
OSCILLOSCOPE MODE				
Vertical deflection				
Bandwidth	60 MHz	100 MHz	100 MHz	300 MHz
	15 MHz, 1.5 MHz or 5 kHz bandwidth limiter			
Number of channels	2 isolated channels		4 isolated channels	
Input impedance	1 MΩ ± 0.5% , approx. 12 pF			
Maximum input voltage	600 V / CAT III (1,000V per Probix) – from 50 to 400 Hz – Probix safety connectors			
Vertical sensitivity	16 calibres from 2.5 mV to 200 V/div and up to 156 µV/div in vertical zoom mode (12-bit converter) – Accuracy ± 2%			
Vertical zoom	"One Click Winzoom" mode (12-bit converter and direct graphical zoom on screen) – x 16 max.			
Probe factor (non-Probix)	1 / 10 / 100 / 1,000 or any scaling – definition of measurement unit			
Horizontal deflection				
Sweep speed	35 calibres from 1 ns/div to 200 s/div., accuracy ± [50 ppm + 500 ps] – Roll mode from 100 ms to 200 s/div			
Horizontal zoom	"One Click Winzoom" system (direct graphical zoom on screen) x 1 to x 5 or x 100 – storage 100 kpts/channel			
Triggering				
Mode	On all the channels: automatic, triggered, one-shot, auto level 50%			
Type	Edge, pulse width (16 ns-20 s), delay (48 ns to 20 s), counting (3 to 16,384 events) Continuous adjustment of Trigger position			
Coupling	AC, DC GND, HFR, LFR, noise – Level and Hold-Off adjustable from 64 ns to 15 s			
Sensitivity	≤ 1.2 division p-p up to 300 MHz			
Digital storage				
Maximum sampling rate	2.5 GS/s in one-shot mode on each channel (100 GS/s max. in ETS mode)			
Vertical resolution	12 bits (vertical resolution 0.025 %)			
Memory depth	100 kpts per channel and file viewer in the manager			
User storage File management	Internal = 1 GB to store the files: trace, text, configuration, math functions, System memory: .pdf print files, .png image files + high-capacity removable µSD-Card: SD 2 GB, SDHC 4-32 GB and SDXC > 32 GB			
GLITCH mode	Duration ≤ 2 ns – 500,000 Min/Max pairs			
Display modes	Envelope, vector, accumulation-, averaging (factors 2 to 64) – XY (vector) and Y(f)=FFT			
Other functions				
AUTOSET	Complete in under 5 s, with recognition of the channels – Frequency > 30 Hz			
FFT analyser & MATH functions	2,500-point FFT (Lin or Log) with measurement cursors – Functions + , - , x , / and mathematical function editor			
Cursors	2 or 3 cursors: simultaneous V and T with AUTO measurement: T1, T2, Dt, 1/Dt, dBV, Ph			
Automatic measurements	Simultaneously with waveform, 20 automatic measurements per channel and on the 4 channels simultaneously with scroll			
MULTIMETER MODE				
General specifications	2 or 4 channels – 8,000 cts min/max/frequency/relative – TRMS – Time/date-stamped graphical recording in logger mode			
AC, DC and AC + DC voltages	600 mV to 600 VRMS, 800 mV to 800 VDC – VDC accuracy +/- (0.5 % + 25 D) – 200 kHz bandwidth			
Resistance	80 Ω to 32 MΩ – accuracy 0.5%R+ 25D – Quick continuity test < 10 ms			
Other measurements	Temperature (HX0035 = KTC, HX0036 = Pt100) / Capacitance 5nF to 5mF / Frequency 200 kHz / Diode test 3.3 V			
Single and three-phase power	Active, Reactive and Apparent power values plus Power Factor simultaneously with the U & I measurements			
HARMONIC ANALYSER MODE				
Multi-channel analysis	2 or 4 (depending on model), 63 orders, fundamental frequency 40 to 450 Hz in auto or manual mode			
Simultaneous measurements	Total Vrms, THD and selected order (% fundamental, phase, frequency, Vrms)			
LOGGER MODE				
Acquisition	Duration: 20,000 s – Interval: 0.2 s – Files: 100,000 measurements			
GENERAL SPECIFICATIONS				
Configuration memories	Not limited according to device - variable file sizes			
Printing	Network printing via Ethernet/Wifi in .png format			
PC communication – software link	Ethernet (100 baseT), WiFi-USB (device, 12 Mbs) – "ScopeNet" application software for PC			
Software	PC: Ethernet and USB, ScopeNet (remote control, data recovery, cursors and automatic measurements) Android tablet – ScopeAdmin Fleet Administration utility			
Mains power supply	Li-Ion rechargeable battery (6,900mAH-40 Wh) – Battery life of up to 8 hrs – Adjustable standby mode Adapter / 2-hour fast charger, universal 98-264 V / 50/60 Hz)			
Safety / EMC	Safety as per IEC 61010-2-30, 2010 – 600 V CAT III / 1000 V CAT II – EMC as per EN61326-1, 2010			
Mechanical specifications	292.5 x 210.6 x 66.2 mm – 2.1 kg with batteries – IP54 protection			
Reference to order	OX9062	OX9102	OX9104	OX9304