



# Analogue/Digital Analogue and Differential Oscilloscopes

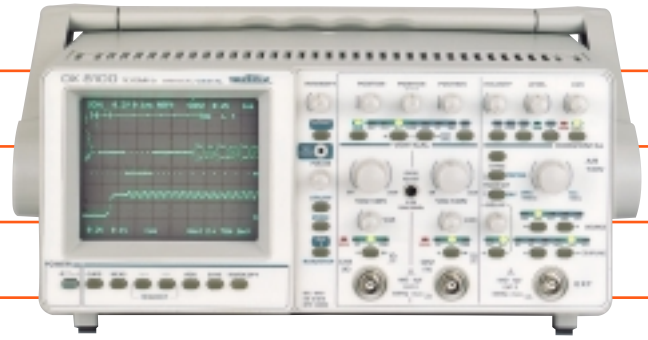


Metrix oscilloscopes are designed to meet all your signal measurement and analysis needs, for production, laboratory, R&D or professional training applications. Our **Differential** oscilloscopes means that you no longer require the use of an additional voltage probe. Our **Combined** oscilloscopes give you the advantage of digital and analogue systems, enabling you to display a signal in real time, in analogue mode, and view events prior to triggering.

# World Class

**metrix**  
Division of Chauvin Arnoux

# Combined oscilloscopes provide the power of Digital technology plus Analogue mode



**OX 8100 OX 8050 OX 8040**

## Analogue plus digital processing

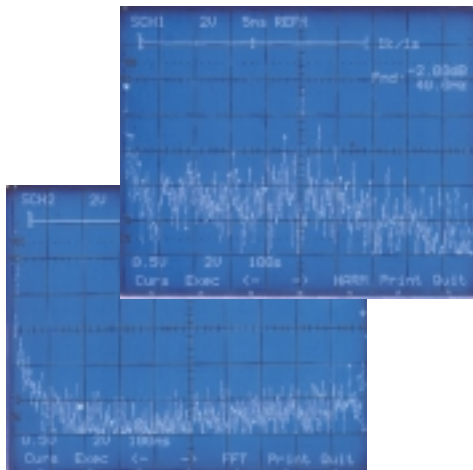
The power of combined digital processing enables you to display and store events prior to triggering and therefore analyse the causes of a phenomena, over a wide range of scan speeds and input frequencies. With a Combined Metrix oscilloscope, you can display very slow phenomena (temperature variations, battery charges, very low frequencies,...). Finally, after acquisition, you can analyse and compare the recorded data (zoom, automatic measurements,...)

## A wide range of digital functions

As well as their 5 cursors, the Combined oscilloscopes offer up to 17 automatic measurements. Their "GLITCH" mode, for capturing parasites, and "ENVELOPE" mode, for storing the minimum and maximum values of several successive acquisition operations, allow a large number of events to be displayed. Lastly, because RS 232 and Centronics links are standard features on most models, users can take advantage of the possibilities offered by digital techniques: analysis and processing on PC by the SX-METRO software, direct printout of the screen on a printer, etc.

## Standard delivery includes FFT and harmonics analysis

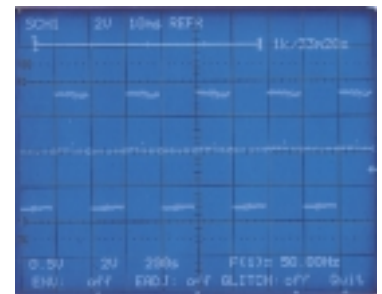
All digital models in the range include the FFT function, for studying the frequency breakdown of the signal, and harmonics analysis, both as standard features. In FFT mode, the cursor follows all the signal counts, each time indicating the amplitude (in Volts or dB) and the frequency. In harmonics mode, the cursor automatically jumps from one harmonic to the next, indicating the number of the harmonic, its amplitude as a percentage of the fundamental and its frequency. This representation of the harmonics is richer than a conventional bar display.



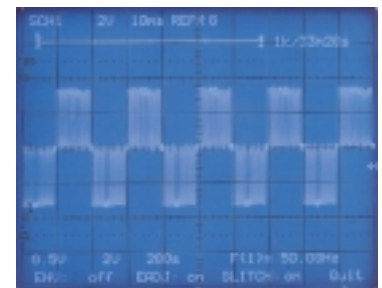
*The FFT and harmonics analysis displays particularly distinctive because of the way the cursor moves and the nature of the information indicated on the screen*

## Print quality equal to display quality

The sampling concept quickly demonstrates its limits when the signal includes steep rises and falls. The solution currently used involves interpolating dots between them (METRIX EADJ dot-join function). Although this process has been around for some time, its extension to printing is much rarer. Unlike many oscilloscopes, the combined oscilloscopes offer the same quality of representation for display and printing (subject to the performance of your printer).



*Representation of rapid rises and falls on screen without the EADJ function.*

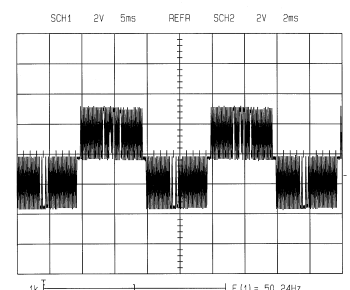


*Same signal with the EADJ function.*

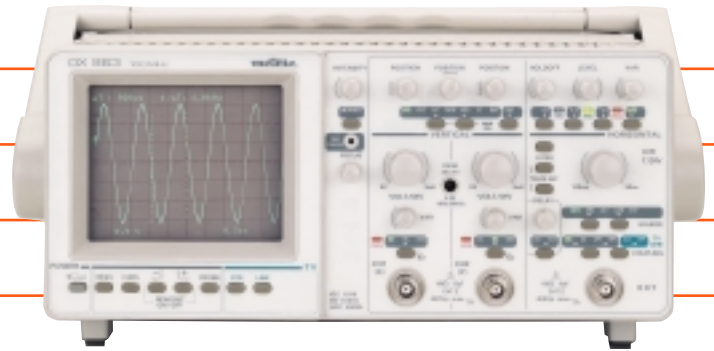
## Combined Analogue/Digital Scopes ordering information

To order	
OX8100	Analogue / Digital 2 x 100MHz
OX8050	Analogue / Digital 2 x 60MHz
OX8040	Analogue / Digital 2 x 30MHz

*Printout of the same signal with the EADJ function.*



# A full choice of Analogue models from 30 to 100MHz



**OX 863 OX 803 OX 530**

## 17 automatic measurements

<b>tr</b>	up time
<b>tf</b>	down time
<b>F</b>	frequency
<b>T</b>	period
<b>W+</b>	positive pulse width
<b>W-</b>	negative pulse width
<b>Ve<sub>eff</sub></b>	RMS voltage
<b>V<sub>moy</sub></b>	average voltage
<b>V<sub>amp</sub></b>	amplitude
<b>V<sub>bas</sub></b>	low voltage
<b>V<sub>h</sub></b>	high voltage
<b>V<sub>pp</sub></b>	peak to peak voltage
<b>V<sub>max</sub></b>	max voltage
<b>DC+</b>	positive duty ratio
<b>DC-</b>	negative duty ratio
<b>φ</b>	phase shift

## Programming

The Metrix combined oscilloscopes are fully programmable, in compliance with the SCPI (Standard Commands for Programmable Instruments) standard. They have RS232 interfaces for printing and remote control. You can thus take full use of all the analysis, documentation and presentation tools available under LabView\* and LabWindows CVI\*. These oscilloscopes have a standard digital automatic peripheral recognition link, with an RS232 or Centronics connection. You can thus send screen dumps directly to a printer. The SX-METRO software package enables you to control instruments, archiving, documentation and result processing. \*LabWindows CVI and Labview are registered trademarks of National Instruments.

## Advantages of analogue mode

Analogue processing enables signals to be displayed in real time, without delay resulting from analogue/digital conversion and storage.

The entire signal is represented, rather than a series of points, without any danger of misinterpretation. In addition, in analogue mode, virtually all trigger elements are represented. Finally, the Autoset and delayed trigger functions enable signals to be synchronised without difficulty.

## Ease of Use

All Metrix oscilloscopes have the same appearance and handling as Analogue oscilloscopes, no specific training is necessary. In addition, they have an AUTOSET function, which enables you to automatically obtain a correct representation of the signal, with readout of parameters on the screen.



*The AUTOSET function provides a correct representation of the signal, simply and automatically.*

## Screen display of parameters and cursors

The OX 863 oscilloscope has a Readout function, for displaying: vertical and horizontal offset coefficients, the triggering point and its slope, the TV standard or line, the probe coefficient or the measuring cursors.

## Counting of video lines

Each model has a TV trigger mode, enabling all the lines of a video picture to be displayed. The OX 863 also has a video line counting mode. This trigger mode is used to display a specific line, chosen by the user from the TV norm (252 - 625 lines) or a specific norm ( up to 1255 lines). This line can be analysed via the second time base.

## Analogue Scopes Ordering Information

To order

OX863	Analogue 2 x 100MHz
OX803	Analogue 2 x 40MHz
OX530	Analogue 2 x 30MHz

Optional accessories

AE0189	Carrying bag for all scopes
HA1342	Safety probe 1/10 - 250MHz
HA1315	Switchable probe 1/1, 1/10 - 150MHz
MN60	Current probe 0.1/200A AC
PAC12	Current probe 0.5/600A AC/DC
PAC22	Current probe 0.5/400A AC/DC
K1	Current probe 1mA/4.2A AC/DC
DP25	Differential probe 1300V peak - peak



# Differential input oscilloscopes offer a single, global solution



**OX 8062 OX 8042 OX 822**

## The only genuine protection against dangerous voltages

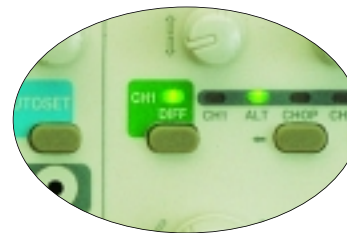
In today's world, nobody can ignore safety any more. But are you always sure that the voltage measured is earthed? Do you always have a single reference potential for the 2 channels? If you look objectively at the various cases of measurement on site, whether in electronics or the electrotechnical field, you will see that it is often necessary to set up a costly and complex assembly. With METRIX's differential-input oscilloscopes there is no need to use accessories to observe the signals superimposed on the mains signal or to analyse the command voltage and the output from any circuit at the same time, with a common mode voltage of up to 600V.



*In differential mode, one BNC connector corresponds to the + terminal and another to the - terminal. In conventional mode: CH1- and CH2- are inhibited*



*Only METRIX oscilloscopes are suitable for such a wide range of uses.*



*Each channel operates independently in differential or conventional mode. All you have to do to choose the mode is press a key.*

## IEC 61010, Cat.III, 300 V Cat.II, 600 V, what could be better?

The OX 8062, OX 8042 and OX 822 oscilloscopes can be used in the laboratory or on site, even in difficult industrial environments, as shown by their installation category...

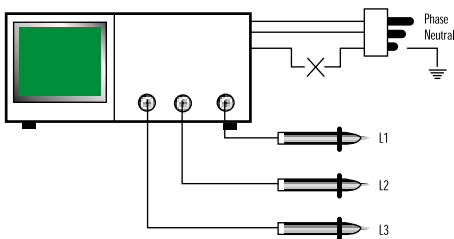
## Change the mode as you want

With no danger, it is possible to switch from one operating mode to the other at any time simply by pressing a button. This flexibility will be particularly appreciated for electronic applications that use miniature probes.

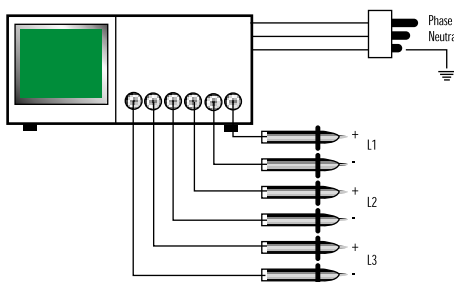
## Up to 200V/div. without accessories

Whether the signal amplitude is high or low, the OX 8062, OX 8042 and OX 822 offer a sufficiently wide dynamic range (from 10 mV/div. to 200 V/div.) for measurement without probes. More savings and more flexible use!

With a conventional oscilloscope



With a differential oscilloscope



Example of use of a differential oscilloscope

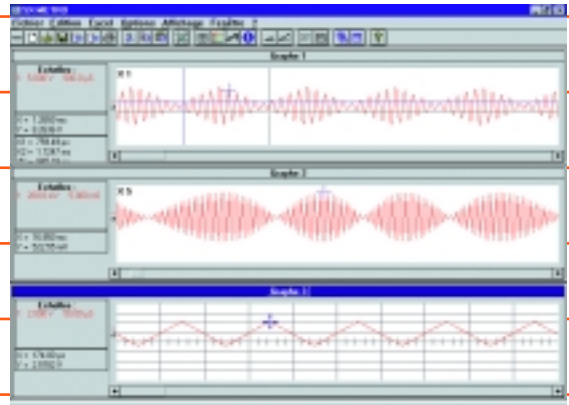
## Differential Input Scopes ordering information

To order

OX8042	Combined Analogue / Digital 2 x 40MHz
OX8062	Combined Analogue / Digital 2 x 60MHz
OX822	Analogue 2 x 20MHz

# SX-METRO

A software package  
to meet all your  
needs



## SX-METRO Software

### Front panel contact software

The OX 863 and the OX 803 can be fitted with an RS232 interface (option) for controlling and programming their front panels via a PC. The software can run from MS-DOS or Windows. The oscilloscope can then be remote controlled, using the front panel displayed on the PC and the mouse or automation software.

### Oscilloscope communications

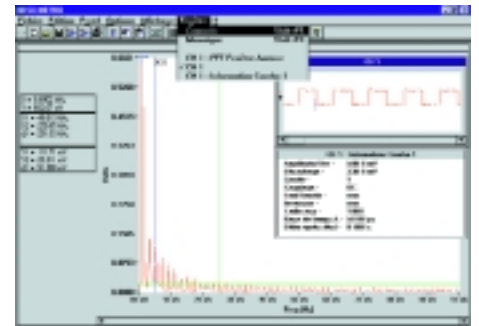
This software is used to import curves stored in the oscilloscope's memory and "picture" files or to load a configuration into the instrument, via the RS232 or IEEE interfaces.

### Analysis

SX-METRO enables you to display curves (definable display window, scale, graticule and cursor options, ...) and to carry out mathematical routines such as the FFT of the displayed signal (windowing and zoom of result, Y scale of FFT in volts or dB, measurements by markers).

### Archiving

Curves, stored in ASCII files, can be displayed on the screen and printed, as and when required, or instrument configurations can be reloaded.



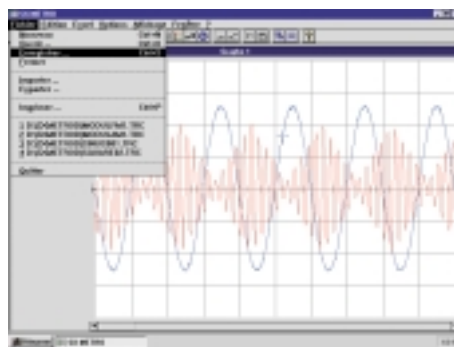
*FFT: display of signal (CH1 or CH2) and its Fourier transform (module). Window and zoom possibilities are provided, together with a cursor on FFT, enabling the frequency and amplitude (v or dB) to be measured.*

### Documentation and processing

With the SX-METRO software, you can transfer data (curve or FFT) easily to Excel. Accordingly, you can insert a signal graph into a report printed in Word or carry out additional mathematical calculations on curve samples.

### SX-METRO software Minimum configuration

- MS-DOS version 3.1 or higher
- Microsoft Windows 3.1, Windows 95/98, Windows NT,...
- PC or 80386-compatible computer or higher and clock speed of at least 25MHz. (80486 33MHz recommended)
- VGA resolution (or higher)
- Math coprocessor
- At least 4Mb RAM, 8Mb recommended
- Approx. 30Mb of free hard disk capacity



### SX-METRO Software ordering information

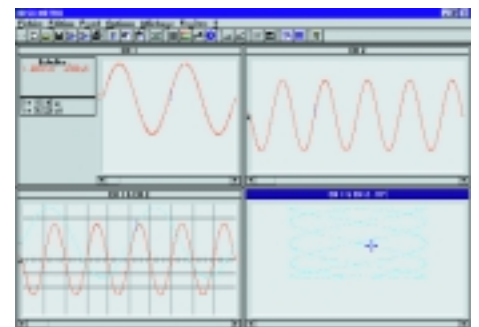
To order

SX-METRO V3.X  
SX-METRO acquisition software for OX8020,  
OX8042, OX8050, OX8062 and OX8100

Accessories included

The SX-METRO kit contains:

1 diskette, 1 PC/oscilloscope serial link lead,  
1 25/9pin adaptor, a gender changer and a User's  
Manual. A free demo of this software is included  
with every combined analogue/digital oscilloscope  
ordered.



*Selection of channels to be displayed: the index pointed shows the selection, CH1 & CH2 (XY). Other possibilities CH1, CH2 or CH1 & CH2.*

# SPECIFICATIONS

**Products**                      **OX8100**                      **OX8050**                      **OX8040**                      **OX8062**                      **OX8042**                      **OX822**                      **OX863**                      **OX803**                      **OX530**

## VERTICAL DEFLECTION

Bandwidth	Analog 100MHz Digital 100MHz	Analog 40MHz Digital 60MHz	Analog 20MHz Digital 30MHz	Analog 30MHz Digital 60MHz	Analog 20MHz Digital 40MHz	Analog 20MHz	Analog 100MHz	Analog 40MHz	Analog 30MHz
Number of channels	2	2	2	2 differentials. 2 BNC per channel	2 differentials. 2 BNC per channel	2 differentials. 2 BNC per channel	2	2	2
Input impedance	1 Mohms/15pF	1 Mohms/25pF	1 Mohms/25pF	1 Mohms/12pF	1 Mohms/12pF	1 Mohms/12pF	1 Mohms/15pF	1 Mohms/25pF	1 Mohms/25pF
Maximum input voltage	400V	400V	400V	600V differential	600V differential	600V differential	400 V	400V	400V
Sensitivity	2mV to 5V/div.	1mV to 20V/div.	1mV to 20V/div.	10mV / 200V/div	10mV / 200V/div	10mV / 200V/div	2mV to 5V/div.	1mV to 20V/div	5mV to 20V/div
Continuous gain adjustment	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5	1 to 2.5
Operating modes	CH1, CH2, -CH2, ALT, CHOP, ADD, XY, MULT, BWL	CH1, CH2, -CH2, ALT, CHOP, ADD, XY, MULT	CH1, CH2, -CH2, ALT, CHOP, ADD, XY, MULT	CH1, CH2, -CH2, ALT, CHOP, ADD, XY	CH1, CH2, -CH2, ALT, CHOP, ADD, XY	CH1, CH2, -CH2, ALT, CHOP, ADD, XY	CH1, CH2, -CH2, ALT, CHOP, ADD, XY	CH1, CH2, -CH2, ALT, CHOP, ADD, XY	CH1, CH2, ADD, -CH2, XY, ALT, CHOP
Component Tester								1kHz 1Vpk-pk signal	

## HORIZONTAL DEFLECTION

Time Base	2	1 + delay	1 + delay	1 + delay	1 + delay	1 + delay	1 + delay	1	1
Sweep speeds (Analog)	50ns/100ms/div	50ns/100ms/div	50ns/100ms/div	50ns/200ms/div	50ns/200ms/div	50ns/200ms/div	50ns/100ms/div	50ns/200ms/div	50ns/200ms/div
Sweep speeds (Digital)	5ns/200s/div.	5ns/200s/div.	5ns/200s/div.	5ns/200s/div.	5ns/200s/div.				
XY mode	4MHz	2MHz	2MHz	2MHz	2MHz	2MHz	4MHz	2MHz	2MHz

## TRIGGERING

TV trigger	PAL, SECAM, NTSC. With Line counting	PAL, SECAM, NTSC. With Line counting	PAL, SECAM, NTSC. With Line counting	Frame & Line with true differential external trigger	Frame & Line with true differential external trigger	Frame & Line with true differential external trigger	Frame and Line. Also Trigger on line number. 1 to 1250	Frame and Line	Frame and Line
Source	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT	CH 1 CH 2 ALT LINE, EXT

## DIGITAL MEMORY

Sampling frequency (Single Shot)	100 MS/s	100 MS/s	100 MS/s	100 MS/s	100 MS/s				
Equivalent Time Sampling	20 GS/s	20 GS/s	20 GS/s	20 GS/s	20 GS/s				
Record Length	2 x (1, 8 or 16 k)	2 x (1, 8 or 16 k)	2 x (1, 8 or 16 k)	2 x (1, 8 or 16 k)	2 x (1, 8 or 16 k)				
Vertical resolution	8 bits	8 bits	8 bits	8 bits	8 bits				
FFT and Harmonic analysis	Yes	Yes	Yes	Yes	Yes				
Converters	2	2	2	2	2				
Glitch Mode	20 ns	20 ns	20 ns	20 ns	20 ns				
Envelope Mode	Yes	Yes	Yes	Yes	Yes				
Trigger Roll Mode	Yes	Yes	Yes	Yes	Yes				
XY Digital Mode	100 MHz	60 MHz	60 MHz	20 MHz	20 MHz				

## SPECIFIC FEATURES

AUTOSET	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Probe ratio compensation	1/1, 1/10, 1/100	1/1, 1/10, 1/100	1/1, 1/10, 1/100	1/1, 1/10, 1/100	1/1, 1/10, 1/100		1/1, 1/10, 1/100		
Automatic measurements	17 Maths Functions	17 Maths Functions	17 Maths Functions	17 Maths Functions	17 Maths Functions				
Measurement cursors	Vt, 1/t, phase	Vt, 1/t, phase	Vt, 1/t, phase	Vt, 1/t, phase	Vt, 1/t, phase		Vt, 1/t, phase		

## GENERAL SPECIFICATIONS

Display type	CRT 8x10cm	CRT 8x10cm	CRT 8x10cm	CRT 8x10cm	CRT 8x10cm	CRT 8x10cm	CRT 8x10cm	CRT 8x10cm	CRT 8x10cm
Interfaces (IEEE option)	RS232 & Centronics (IEEE option)	RS232 & Centronics (IEEE option)	RS232 & Centronics	RS232 & Centronics	RS232 & Centronics	RS232 (option)	RS232 (option)	RS232 (option)	
Power supply 45/440 Hz	96 to 264V, 45/440Hz	96 to 264V, 45/440Hz	96 to 264V, 50-60Hz	110-230V / 50-60Hz	110-230V / 50-60Hz	110-230V / 48/440Hz	94 to 264Volts 48/440Hz	94 to 264Volts 48/440Hz	94 to 264Volts
Dimensions	450 x 340 x 155mm	450 x 340 x 155mm	450 x 340 x 155mm	450 x 340 x 155mm	450 x 340 x 155mm	450 x 340 x 155mm	450 x 340 x 155mm	450 x 340 x 155mm	450 x 340 x 155mm
Weight	7kg	5.5kg	5.5kg	7kg	7kg	6.5kg	6.0kg	6.3kg	5.5kg
IEC 61010 Safety	Cat. II 400V	Cat. II, 400V	Cat. II, 400V	Cat. III 300V/ Cat II 600V	Cat. III 300V/ Cat. II 600V	Cat. III 300V/ Cat. II 600V	Cat. II 400V	Cat. II 400V	Cat. II 300V
Warranty	24 months	24 months	24 months	24 months	24 months	24 months	24 months	24 months	24 months



**Laptop Digital Scope**

**metrix**  
Division of Chauvin Arnoux

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**Microwave Scalar Tester**

