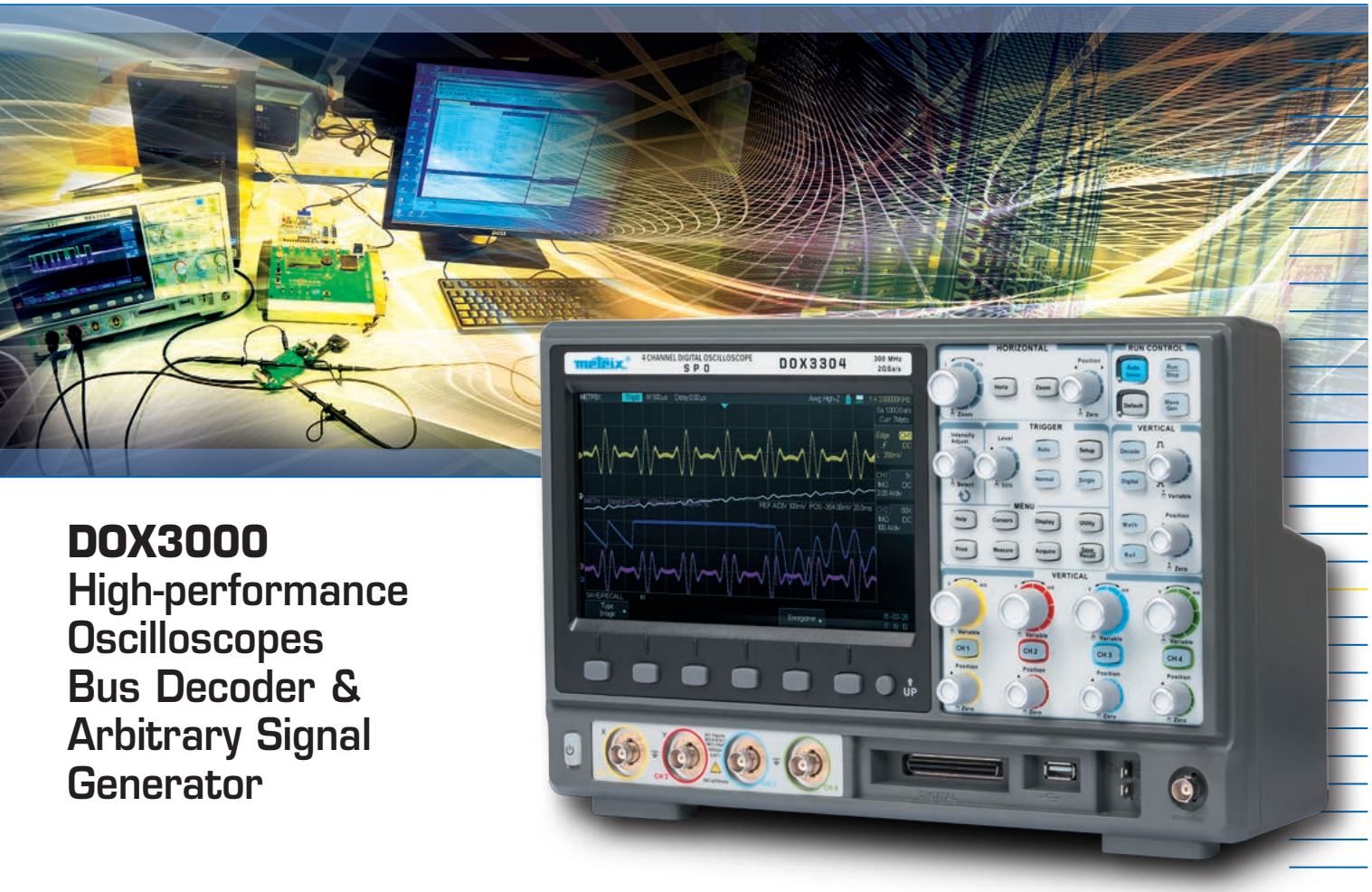
DOX3104 - DOX3304

Benchtop digital oscilloscopes
4 channels, 100 & 300 MHz



DOX3000
High-performance Oscilloscopes Bus Decoder & Arbitrary Signal Generator

- 8¨ display with **Sensitive Phosphor Oscilloscope technology** for optimized waveform capture: 110,000 wfs/s
- Memory depth for acquisition: **28 Mpoints**
- **Serial bus decoding** function with integrated triggers: I2C, SPI, UART, CAN, LIN
- Built-in **25 MHz arbitrary generator** with programming software included
- **High performance** with maximum sampling **up to 2 GS/s in real time**, vertical sensitivity from **2 mV/div. à 10 V/div.** and from 1 ns to 50 s/div with **comprehensive complex triggers (Pattern, windows, interval, Dropout, runt)**
- Easy analysis with **32 automatic measurements, statistical table, manual cursor measurements, advanced mathematical functions**

ETHERNET · USB · IEC 61010 300 V CAT I · 3-year warranty

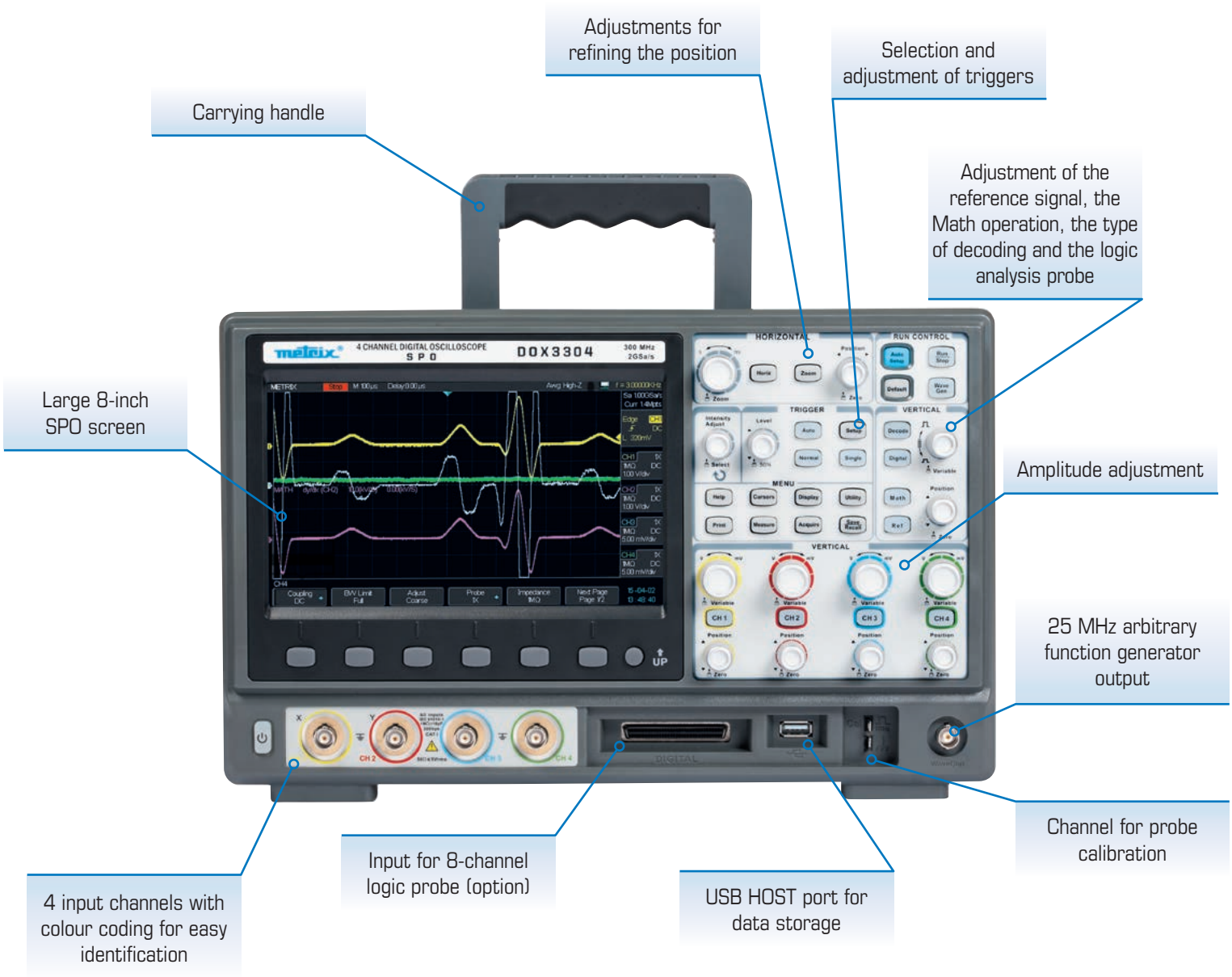
Measure up

SPO PERFORMANCE

The **DOX3000 Series** includes cutting-edge digital technology to meet customers' requirements in **electronics**. These oscilloscopes based on the SPO technology offer powerful digital trigger functions, serial bus decoding, an MSO logic input and a built-in logic analyser.

They can **capture up to 110,000 waveforms per second.** In this way, their ability to record faults and events is optimized with the possibility of viewing the signals in full.

The 8¨ colour screen offers 256 colour levels to adjust the brightness of the waveforms. This can be used to make it easier to view the curves with colour shading.



Available on the rear of the instrument:

Input channel located on the rear of the instrument for the PASS/FAIL mask test, ideal for quickly identifying the problems on a signal.

Input channel for external trigger.

PC/device communication interfaces: USB or ETHERNET.

KENSINGTON lock slot for greater security.

ADVANTAGES OF THE DOX3000 SERIES

Memory depth

The memory depth of **up to 28 Mpts (1 channel) at a rate of 2 GS/s** makes it possible to capture fast transient signals or long, slow phenomena.

Smart trigger functions for optimized acquisition

Serial triggering can be used to quickly isolate the events on a bus when viewing the signal to identify a fault on the analogue frame and then allow decoding of the word and its parameters in a table.
The decoding protocols are integrated for the main buses (I2C,SPI, LIN, CAN, UART) and can be viewed instantaneously with the waveform and intuitive colour coding for easier troubleshooting.

In addition, there are also classic triggers and complex triggers for electronics:

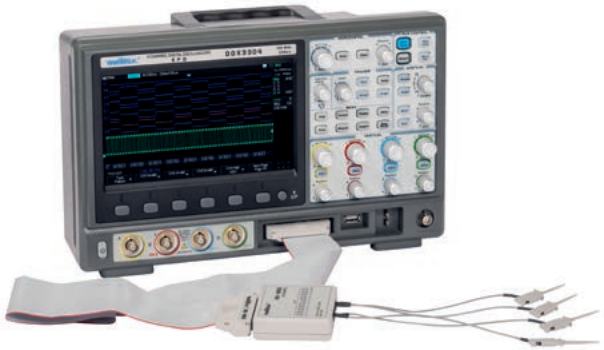
- "Pattern trigger" on logic signals: and, or, nand, nor
- "Runt trigger" on pulse conditions
- "Interval trigger" : on status conditions: rise, fall or "Dropout" for BURST signal analysis on "Windows" central window sizing with absolute or relative delta

Additional functions

- Advanced functions with **32 automatic measurements** and cursor measurements, as well as an event statistics table
- Powerful zoom functions: possibility of extending the signal horizontally, compressing it or "expanding" it
- **DIGITAL**, an **8-channel logic analysis probe** + clock available as an option to analyse electronic design signals
- A **built-in 25 MHz function generator**, with 10 stored signals and the EASYWAVE software for creating arbitrary signals
- **MATH**, powerful **mathematical functions** ranging from the simple to the complex(d/dt) including integrals (∫dt) and square root (√)
- FFT calculation on all 4 channels on 1,024 points simultaneously with the waveform

Electronics applications

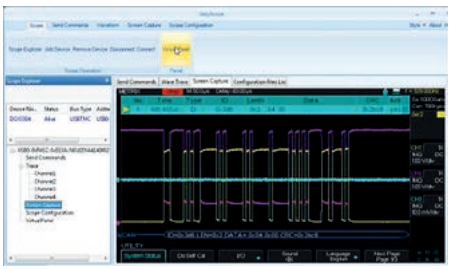
- **SPO**: design architecture integrated in DOX to meet the multiple, varied requirements of designers and production / troubleshooting specialists in telecommunications, computing and peripherals, as well as automotive and industrial electronics
- **DECODE**: decoding of the main field buses used in electronics and automation (UART/RS232.SPI and I2C) or the automotive sector (CAN/LIN). Can be used to assess new bus and network architectures when they are implemented, to check the increasing flow of data or to debug PCBs in order to establish the link between the hardware and software parts
- **Video trigger**: video has flooded the market in the personal computer and mass-consumer telecommunications sector, so DOX 3000 offers video triggering to make it easy to capture and analyse HD signals



Data analysis and processing tools

The EASYSCOPE software for PC allows you to use a USB or Ethernet connection to enter information (e.g. screenshots in ".bmp" format) on the signals and incorporate it in the reports drawn up on site or in archive files, without any programming.

The **EASYSCOPE software** interfaces with a PC for programming of the DOX, recovery of the screenshots from the TRACE files and remote testing.
A powerful statistics mode can be used to search for events in a recording or analyse the signal's stability by means of standard-deviation measurements.



The **EASYWAVE software** can be used to generate arbitrary signals and analyse the behaviour of prototype components in order to define the performance levels by simulating signals with the built-in arbitrary signal generator.

The **8-channel logic probe** completes the possibilities for analysis, turning the DOX into an MSO3000.

THE DOX3000 SERIES

Technical specifications	DOX3104 / DOX3304
Interface	
Screen	Colour 8' TFT LCD screen, 800 x 480 pixels, 24 bits Adjustment of brightness and contrast (500:1)
On-screen display	On 8x14 div with 4 channels + reference + Math functions and statistics table – full screen – Vector or point modes with interpolation, permanent SPO mode: normal or colour
Language	French, English, Italian, Spanish and German - Help in French/English
Vertical deflection	
Time base speed	100 MHz / 300 MHz Bandwidth limit: 20 MHz
No. of channels	4 channels + 1 external channel
Max. input voltage	300 V (DC+AC Pk)
Vertical sensitivity	12 ranges from 2 mV to 10 V/div – Accuracy ±3% – 8-bit resolution
Rise time	< 3.5 ns (DOX3104) / < 1.2 ns (DOX3304)
Probe compensation factors	x 1 / 5 / 10 / 20 / 50 / 100 / 200 / 500 / 1,000
Horizontal deflection	
Time base speed	1 ns/div to 50s/div (oscilloscope)
Max. no. of traces captured per second	110,000 traces/s
Horizontal zoom	Compression, expansion
Automatic ROLL mode	From 100 ms/div to 50 s/div (1-2-5 step)
Trigger system	
Sources/Mode	CH1, CH2 or CH3, CH4 Ext, Ext/5, AC line / Auto, Normal, One-shot
Type	Edge, Pulse (20 ns to 10 s), Amplitude (rise time, fall time), Video (NTSC, PAL, SECAM, HD and custom), Windows, Interval, Dropout, Runt, Pattern
Trigger on serial bus and Decoding	I2C, SPI, UART/RS232, CAN, LIN
MSO logic analyser input	Option: 8 channels + clock for TTL/CMOS/LVCMOS3.3 and LVCMOS2.5/CUSTOM signals
Acquisition	
Real-time sampling rate	ETS: 2GS/s
Vertical resolution	8 bits (vertical resolution 0.4%)
Acquisition depth	Up to 28 M: 14 Mpts per channel, adjustable: 7 k / 14 k / 70 k / 140 k / 700 k / 1.4 M / 7 Mpts
File manager	Trace files (DAV proprietary format and Excel-compatible ".CSV" format) .SET configuration files – .BMP screenshot files
Acquisition	Normal, Peak detect, Average, High res.
Display format	Y(t), Zoom, Roll, X-Y
"Statistics" mode	Measurement of events
Other functions	
AUTOSET	AUTO adjustment: amplitude, time base and trigger
MATH function	Trace calculated in real time: CH1, CH2, CH3, CH4, + , - , x , / , (d/dt), integral (∫dt) and square root (√)
FF analyser	FFT calculated on 1,024 points - simultaneously with the waveform for the 4 channels Adjustable windowing: rectangular, Hamming, Hanning, Blackmann
Cursors	Manual, Track mode and Auto
PASS/FAIL	Pass/Fail mode with specific terminal for envelope adjustment
Automatic measurements	32 measurements and statistics table
Built-in 25 MHz function generator	25 MHZ- 125 MS/s - 14 bits - arbitrary function generation with EasyWave on PC
General specifications	
Recording	Internal storage or USB flash drive on front panel
Printing	Via USB Device (PictBridge)
Communication on PC	Via USB device or Ethernet link with EASYSCOPE (OX) and EASYWAVE (GX) software
Power supply	Universal 100-240 V / 45-440 Hz/ 50 VAmax with removable cable
Safety / EMC / Locking	Compliant with the IEC 61010-1 standard, 300V CAT I - EMC as per EN61326-1 - Kensington lock
Temperature	Use: 0°C to +40°C, Storage:-20°C a +60°C
Mechanical specifications	352 x 111 x 224 mm – 3.6 kg (4 channels) – IP20 – 3-year warranty

REFERENCES

DOX3304 (300 MHz, 4 channels) + arbitrary generator + serial bus decoding
DOX3104 (100 MHz, 4 channels) + arbitrary generator + serial bus decoding

Included: Operating Manual in 5 languages on USB drive + quick startup guide on paper, 4 x 1:1/(10:1) probes, safety datasheet, EasyScopeX software for oscilloscopes and EASYWAVE for arbitrary generators, power supply cable, USB cable.

OPTION

DOX-MSO3LA
8-channel logic probe and DOX3XXX-MSO software function

FRANCE
Chauvin Arnoux
190, rue Championnet
75876 PARIS Cedex 18
Tél : +33 1 44 85 44 85
Fax : +33 1 46 27 73 89
info@chauvin-arnoux.fr
www.chauvin-arnoux.fr

UNITED KINGDOM
Chauvin Arnoux Ltd
Unit 1 Nelson Ct, Flagship Sq, Shaw Cross Business Pk
Dewsbury, West Yorkshire - WF12 7TH
Tel: +44 1924 460 494
Fax: +44 1924 455 328
info@chauvin-arnoux.co.uk
www.chauvin-arnoux.com

Middle East
Chauvin Arnoux Middle East
P.O. BOX 60-154
1241 2020 JAL EL DIB - LEBANON
Tel: +961 1 890 425
Fax: +961 1 890 424
camie@chauvin-arnoux.com
www.chauvin-arnoux.com

CHAUVIN ARNOUX GROUP