MTX 3250 : the built-in multimeter-analyser

A cutting-edge of multimeter

It all begins with a connection reduced to 3 terminals which limits maneuvers and errors and allows complete current "AUTORANGING" between 50 µA and 20 A. Then with its 3-way display, the MTX 3250 gives measurement combinations that meet current applications simply and efficiently, such as bandwidth measurement (attenuation in dB and frequency display).

- For metrology control, the "SPEC" Mode calculates and displays the instrument's uncertainties according to the ranges and the measured value

- Mode MATH gives a direct reading of the measured quantity, as well as the corresponding physical unit.
- "Surveillance" Mode SURV records the minima and maxima so as to capture and date faults.
- "RELATIVE" Mode, expressed in absolute, percentage or dB (ratio), allows direct terms operation.

Associated features

Like the generator of the same family, the MTX multimeter is an exceptional, multifunctional device. Thanks to its signal analysis, there is no need for the user to use other instruments (an oscilloscope for example) when verifying the measurements made.

The frequent errors, often ignored, due to an excessively high crest factor, are impossible to make. Indeed, the MTX 3250 measures rapid peaks at 500 µs non-stop and lets you know when it finds a fault. Better still, when "AUTO PEAK" Mode is validated, the multimeter automatically switches to the range best suited to the type of signal measured. Since the crest factor is displayed you can also make an initial quantitative diagnosis on signals.

The MTX 3250 is a rational investment for it is also a frequency meter, a thermometer and even a logger, which means that it is not necessary to purchase instruments that you don't use that often. Also for recording up to 4 channels and 12 parameters in the laboratory, the "data logger" version of this multi-purpose instrument offers high-performance service with its associated PC software.

Temperature is measured directly using a Pt 100 or Pt 1000 probe, as is frequency up to 1 MHz, with period and duty cycle.

And in order to meet your expectations regarding automated systems, a 100% programmable version of this instrument exists via an SCPI-compatible, RS232 optical link at 57,600 bauds.

FEATURES

Display	VDC ranges and basic accuracy	VAC ranges and basic accuracy Bandwidth	IDC ranges and basic accuracy	IAC ranges and basic accuracy Bandwidth	Ohm ranges and basic accuracy	Dimensions H x L x W	Interface MTX 3250-P MTX 3250-A
50,000 counts LCD 50 x 140 mm Backlit 3-way display	500 mV - 500 V & 1000 V 0.08%R+3D	500 mV - 600 V 0.5%R+3D (50,000 counts) 100 kHz	500 µA - 500 mA & 10 A 0.2%R+3D	5 µA – 500 mA & 10A 0.5%R+3D 10 kHz	500 - 50 MΩ 0.1%R+3D	170 x 270 x 190 mm Weight: 2.3 kg	Optical RS232 57,600 bauds

- Other measurements: continuity test, diode test, 50 nF – 50 mF capacitance, frequency 1 Hz-1 MHz, duty cycle 0.01% to 100%, temperature – 200 to +800°C, Pt100 and Pt1000.
- PEAK HOLD function: Pk+/- 500 µs on I & V, crest factor
- Additional features: SURV = dated MIN/MAX/MATH =dB, dBm, ax+b/ OFFSET (Offset, nil, delta%) / Data HOLD & Auto HOLD
- Additional features on the MTX 3250-P: PRINT, 0.5 s to 10 h rate, clock and calendar, RS232 optical drive
- Additional features on the MTX 3250-A:DATA LOGGER with 1,500 stored measurements, 1 or 3 values at a time.

Accessories and information for ordering

Standards: safety as per IEC 61010-1, 2001 and EMC as per NF 61326-1, 1998
Warranty: 3 years
The MTX 3250 multimeter is supplied with 1 mains power cable, 1 set of measurement leads, a user's manual and an interactive presentation of the instrument on CD-ROM.

To order

MTX3250	50,000-count Benchtop Multimeter
MTX3250-P	50,000-count Benchtop Multimeter + RS232 Supplied with an RS232 optical link, a programming manual and Labwindows / Labview drivers on CD-ROM
MTX3250-A	50,000-count Benchtop Multimeter + Logger Supplied with an RS232 optical link, a programming manual and Labwindows / Labview drivers and the SX-DMM data logger software on CD-ROM

MTX 3240: the stand-alone meter-generator

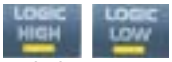
A generator with innovative features

Its advanced technology allows each user to benefit from its new, essential functions:

- Frequency settings – guarantees stability to the nearest digit, and intelligent accelerator with automatic range change for frequency

- Automatic range changing optimised for "LEVEL and OFFSET" amplitude

- Variable duty cycle with fixed frequency
- •"LOGIC " function



for a fast and simple solution to generating logic signals with directly adjustable thresholds

- A rugged generator with protected 60 VDC / 40 VDC outputs

Combined functions

Another advantage of these innovations: complete functionality. The MTX 3240's combined functions enable autonomous operation which means that, when simply testing settings, you can avoid the systematic use of an oscilloscope or multimeter.

- Frequency control loop and display
- AMPLITUDE VPP (peak/peak) and OFFSET VDC check and display
- Duty cycle check and display

The MTX 3240 is also a rational investment for it is also a 100 MHz frequency meter (300 V CAT I), which means that it is not necessary to purchase an instrument for occasional use.

And in order to meet the user's requirements in terms of automated systems in an economical way, a 100% programmable version of this generator is available, using a rapid, SCPI-compatible link.

MTX 3240
avec fréquencemètre intégré

FEATURES								
Display	**Frequency range**	**Signal forms**	**Outputs**	**Sweep**	**External frequency meter**	**Power supply**	**Dimensions HxLxW**	**Interface MTX 3240-P**
LCD 50x 140 mm Main display 20 mm 4 variables at a time	0.1 Hz to 5.1 MHz 7 ranges + fine-tuning to the nearest digit + accelerator Accuracy: 0.05%	Sine, square, triangle, pulse, ramp, TTL, LOGIC Distortion < 0.5%	1/ Main: up to 20 VPP open circuit, automatic range 2/ TTL Protection: overload 60 VDC / 40 VAC	LIN or LOG CONTINU 1 / 50 min 10 ms to 10 s internal or external	0.1 Hz to 100 MHz Accuracy: 0.05% Input CAT I 300 V Automatic sensitivity	115 V – 230 V – 240 V 50 / 60 Hz CAT II 300 V	170X270X 190 mm Weight/ 2.8 kg	Optical RS232

Accessories and information for ordering

Standards: safety as per IEC 61010-1, 2001 and EMC as per NF 61326-1, 1998
Warranty: 3 years
The MTX 3240 generator is supplied with a mains power cable, a user's manual and a interactive presentation of the instrument on CD-ROM

To order

MTX3240	Functions Generator 5.1 MHz
MTX3240-P	Functions Generator 5.1 MHz + RS232 Supplied with an RS232 optical link, a programming manual and Labwindows / Labview drivers on CD-ROM

MTX3252, MTX3352 and MTX3354: 2 or 4-channel oscilloscopes – analysers, 60 to 150 MHz!

Man-Machine Interface, simplicity serving performance

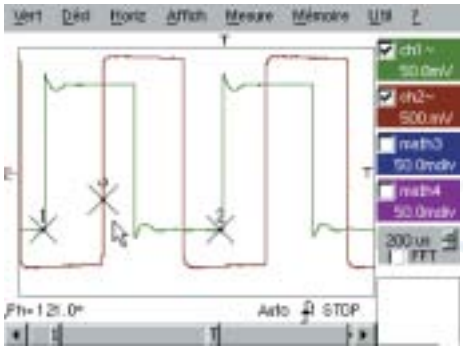
- The instrument can be controlled using the mouse or the keyboard
- Simplified, user-friendly adjustments using the 21 direct-access keys on the front panel and the "Windows-like" environment
- Detailed online help in 5 languages available at all times with the key
- These instruments are lightweight and compact and are equipped with a handle. A special “Site Kit” is available allowing the oscilloscope to be implemented without removing it from its carrying bag

Communication experts

- Equipped with an RS232 link, a Centronics interface and a USB connection for communicating with a PC or printer
- Remote management due to the Ethernet link and the HTML server included in each instrument

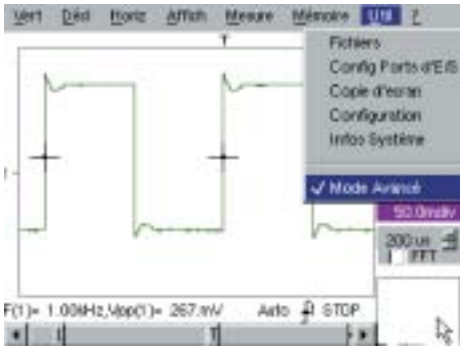
Display

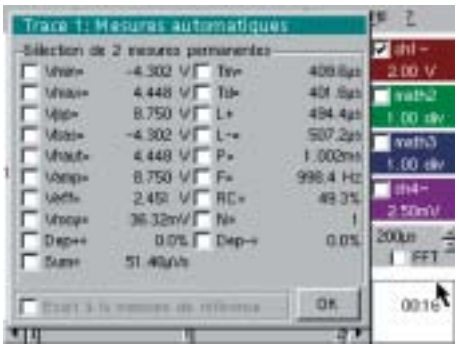
- Cursors can be positioned on the signals at any time for precise measurements.



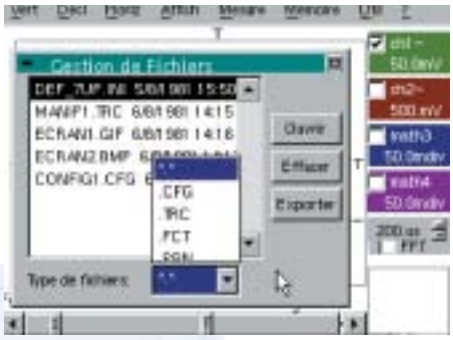
- Thanks to its 50,000-point memory depth, the "Winzoom" horizontal trace zoom can enlarge up to x100 by displaying the actual points acquired.
- An exceptional vertical dynamic range from 2.5 mV to 100 V per div.
- The "full trace" function allows you to split the screen in two in order to make it easier to read the curves.
- Up to 4 curves displayed on the screen and possibility of making comparisons between two curves.
- To simplify and save considerable time, users can select and display 2 automatic measurements among 19.

- Complex analysis functions are accessible in "advanced" mode; in "standard" mode, these are masked to keep the display simple.





MTX3252, MTX3352 and MTX3354:
2 or 4-channel oscilloscopes – analysers, 60 to 150 MHz!



A vast memory for recording

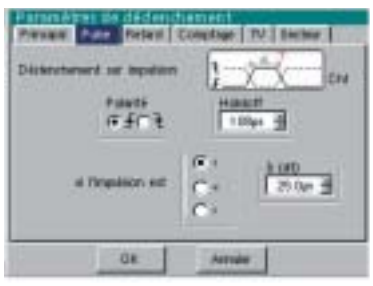
- The 50,000-point memory depth is a reference in this category of oscilloscopes
- Recording duration and sampling frequency 20 times higher than a traditional oscilloscope
- The oscilloscopes in the MTX COMPACT range possess an exceptional resolution of 100 GS/s in repetitive mode and 200 MS/s in one-shot mode, allowing time base calibres ranging from 200 s/div to 1ns/div.
- Recording and on-screen retrieval of curves
- Possibility of saving files in the instrument and printing them or exporting them onto a PC for subsequent processing in "Windows" applications (reports, spreadsheets, printing, images, etc.)
- The traces and files recorded are time/date-stamped
- The files are generated in standard formats: .gif, .pcl, .txt, .bmp, .eps, .prn, etc.

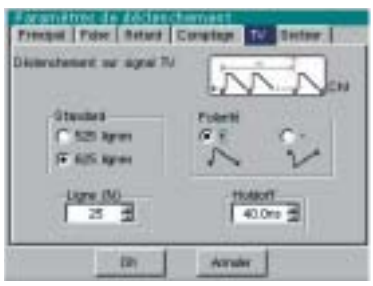
Integrated instruments for a "global tool"

- All the oscilloscopes are equipped with a function for real-time, multi-channel FFT analysis of the signal
- For Electrical Engineering users, we also propose 31-order multi-channel harmonic analysis as an option
- Lastly, for people who need to monitor the variations of physical or mechanical phenomena over time, a fast digital recorder can be integrated into the instrument as a software module

Performance within everyone's reach

- The oscilloscopes in the MTX COMPACT range possess a 5.7" colour LCD with backlighting for excellent reading accuracy
- There is a wide choice as MTX COMPACT offers three 2 and 4-channel instruments with bandwidths of 60MHz, 100MHz or 150MHz which are ideal for both Education and Industry
- There are 5 different trigger modes: **Pulse**, trigger on pulse width, **Delay**, trigger on pulse edges with delay, **TV**, trigger on TV signal, **Count**, trigger on edges with counting of events, and **Mains**, trigger on rising or falling edge of the 50/60Hz mains voltage
- As well as these multiple parameterization modes, Hold-off is available on the majority of these trigger functions
- SPO, an “analogue-type” display technology capable of showing the changes in the signal (modulations, jitters, etc.) and the one-off phenomena (transients, glitches, etc.)





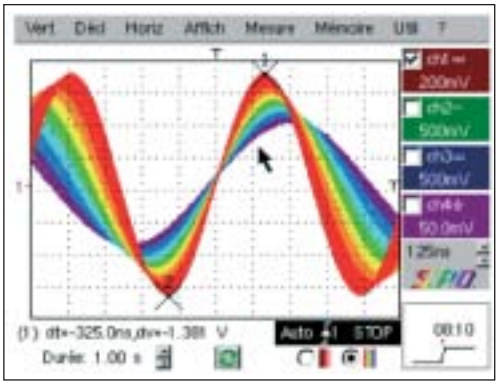
metrix

SPO, Smart Persistence Oscilloscope: An essential tool for smart display!

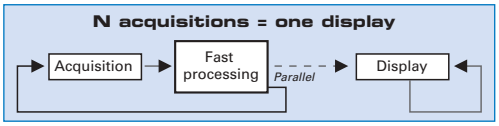
The new generation of MTX COMPACT oscilloscopes is equipped with an " SPO " mode which can be used, like an analogue model, to show the changes in the signal over time, such as jitters, modulations and unstable phenomena.
This display mode can also be used to reveal one-off phenomena such as transients and glitches.

SPO technology

The " SPO " technology allows the acquisitions to persist for a preset duration so that cumulated traces can be observed. The brightness or colour assigned to the point on the screen will fade if it is not renewed during a subsequent acquisition.

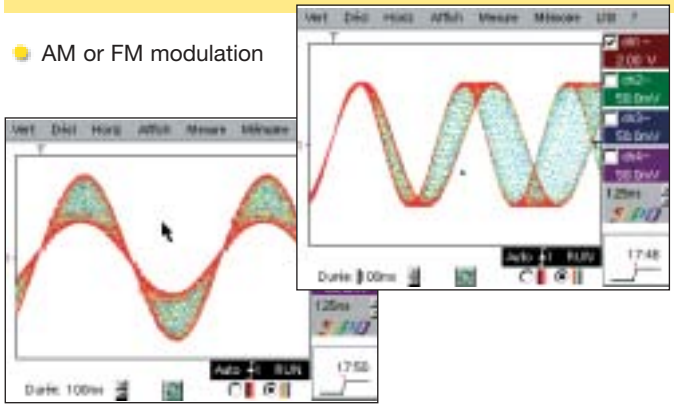


- Acquisition therefore takes place in three dimensions:
  - time
  - amplitude
  - occurrence
- Thanks to its 50,000-point memory depth, the oscilloscope acquires and processes the information in parallel
- The number of acquisitions per second can be multiplied by more than 1,000, thus considerably reducing the time between successive acquisitions
- On-screen representation of the 50,000 points acquired by means of a smart compression system
- The "occurrence" dimension provides a statistical view of the distribution of the samples. The colour or brightness shows the irregularities of the signal
- Display durations for the points acquired: 100ms, 200ms, 500ms, 1s, 2s, 5s, 10s and infinite.

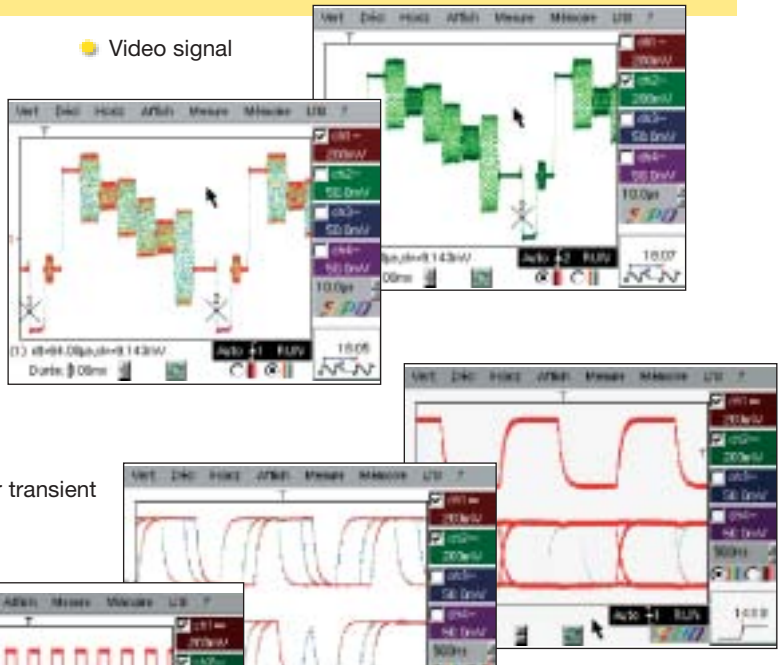


Applications

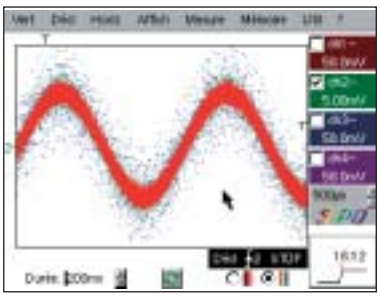
- AM or FM modulation



- Video signal



- Noise characterization



- One-off or transient events

MTX3252, MTX3352 & MTX3354 :
60, 100 and 150MHz Oscilloscopes – Analysers

FEATURES	MTX 3354	MTX 3352	MTX 3252
Man-Machine Interface			
Display	5.7" colour LCD (115 x 86 mm) 320 x 240 + CCFL backlighting	5.7" monochrome or colour LCD (115 x 86 mm) – 320 x 240 + CCFL backlighting	
Number of curves on screen	4 curves + 4 references		
Commands	21 direct shortcut keys + 1 encoder + 1 "help" key "Windows-like" menu – all commands accessible using the mouse Choice of language via the menu (FRA/ENG/SP/IT/GER)		
Vertical Deflection			
Bandwidth	150 M (15 MHz, 1.5 MHz and 5KHz bandwidth limiter)	100 MHz (15 MHz bandwidth limiter)	60 MHz (15 MHz bandwidth limiter)
Number of channels	4 channels – class 1 – CAT II 300V	2 channels – class A – CAT II 300V	
Sensitivity	2.5 mV to 100 V/div + vertical expansion up to x10 (max. sensitivity 250 µV/div)	2.5 mV to 100 V/div + "Winzoom" vertical expansion up to x10	
Rise time	< 3 ns	< 3.5 ns	
Horizontal Deflection			
Sweep rate	1 ns to 200 s/div – Graphic "Winzoom" function up to x100		
Trigger			
Modes	AAuto, Normal, One-shot, Auto 50%		
Types	Edge, Pulse Width, Delay, Event Counting, TV Line Counter, Hold-off		
Sources	CH1, CH2, CH3, CH4, Mains	CH1, CH2, EXT and Mains	
Digital Memory			
Max. sampling rate	Repetitive = 100 GS/s One-shot = 200 MS/s 9-bit converter		
Memory depth	50,000 points – 4 references + 16 curves of 50 kpts		
Display modes	Glitch, Envelope, Averaging, Digital XY		
SPO (Smart Persistence Oscilloscope)			
Duration	100 ms, 200 ms, 500 ms, 1 s, 2 s, 5 s 100 s and Infinite		
Display	Monochrome or colour		
Acquisition rate	50 kwaveform/s max. per channel – 19 MS processed per s and per channel		
Recorder mode			
Acquisition rate	Sampling interval from 40 µs to 54 µs (2 s to 31 days' recording)		
Processing	Direct time/date-stamping, conversion and units of physical quantities, measurements using cursors and event search function, files usable in standard spreadsheet software		
Harmonic analyseur mode			
Analysis range	31 orders simultaneously on 1 to 4 channels		
Processing	Permanent display: RMS value of THD – Selected order: %F, phase, freq, Vrms		
Interface	RS232, Centronics, USB, Ethernet with HTML server		
General specifications			
Casing	210 x 177 x 200 – 2.5 Kg – IP30		
Power supply	100 to 240 VAC – 47 to 63 Hz		
Safety	IEC 1010-1 (2001) – Power supply overvoltage CAT II 240 V – Overvoltage on measurement inputs CAT II 300V		
EMC	NF EN 61326-1 07/97 + A1 10/98		

To order :

- **MTX3354E-C** : 4 channels Digital Oscilloscope-analyser, Colour 150 MHz, Ethernet
- **MTX3354E-CK** : MTX3354E-C + SX-METRO/P Software
- **MTX3252BE-C** : 2 channels Digital Oscilloscope-analyser, Colour 60 MHz, Ethernet
- **MTX3352BE-C** : 2 channels Digital Oscilloscope-analyser, Colour 100 MHz, Ethernet
- **MTX3252BED** : MTX3252BE-C + differential probe MTX1032-B
- **MTX3352BED** : MTX3352BE-C + differential probe MTX1032-C