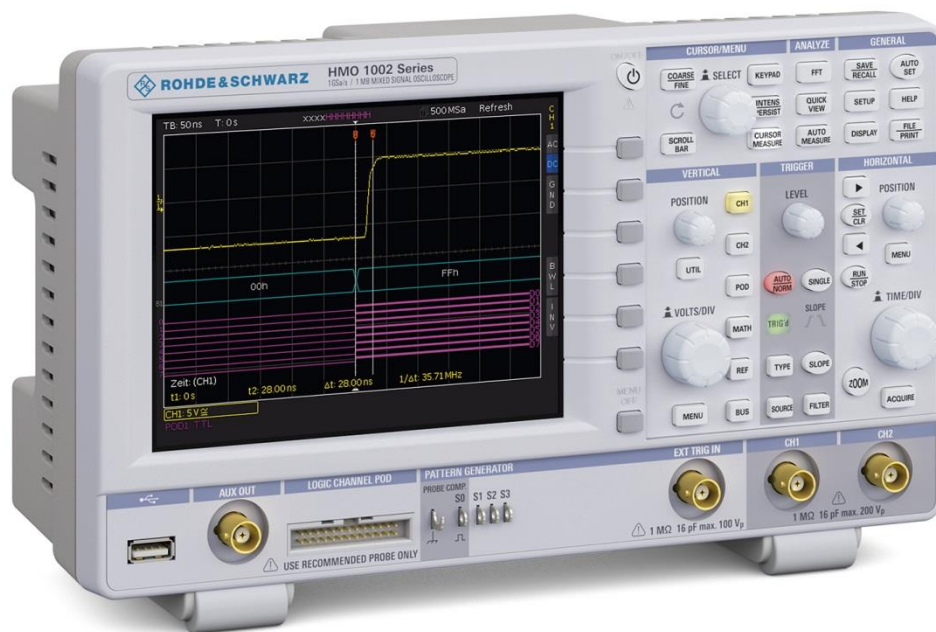


HMO 1002: 6+1 Simply more Value.

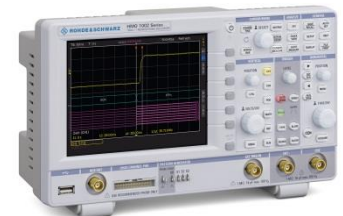


等同RTC1002

- Rolf Hohmann, Director Sales HAMEG Instruments GmbH

Agenda

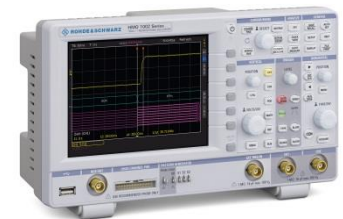
- ← Introduction
- ← Applications, Target Customers, Value proposition
- ← Product Description, key specs
- ← Competition





Value Proposition

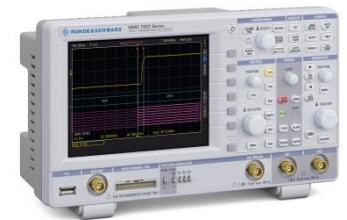
- ← First entry level Scope from R&S.
Developed by the Hameg R&D facilities in Germany and manufactured in Europe according to highest quality standards
- ← Entry level 6+1 Scope with state of the art functionality and best in class sensitivity
- ← Economy Scope/MSO for general purpose applications in Electronic Design and lab environment
- ← Built in MSO capability and 5 more Bench functionalities at a best in class price performance (6+1)
- ← Education Mode,
tailored to be used as „Class Room“ Scope





Value Proposition

- ← Lowest vertical noise in its class
- ← Lowest audible noise (fanless) in operation in its class
- ← QuickView and QuickMath for fastest access to the most demanding functions
- ← Fastest boot time (<5 seconds)
- ← MSO as standard (8 digital inputs), logic probe required
- ← Trigger and Decode of I²C, SPI, UART/RS-232, CAN, LIN available as low cost option
- ← Protect investment:
HMO is a Platform where new functions are retrofittable via firmware upgrade.



Applications and Target Customers



Applications

- ← Analog circuit design
- ← Mixed signal design and debug
- ← Embedded design and debug
- ← Education and service

Target customer

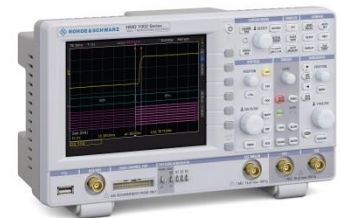
- ← Engineers designing mixed signals and embedded circuits (automation, automotive, medical, cellular)
- ← Power electronics (Switch Mode Power Supply / Power Inverter design, motor controls)
- ← Education customers
- ← Service technicians who need a light, small but powerful instrument with fast boot time and no need for battery operation



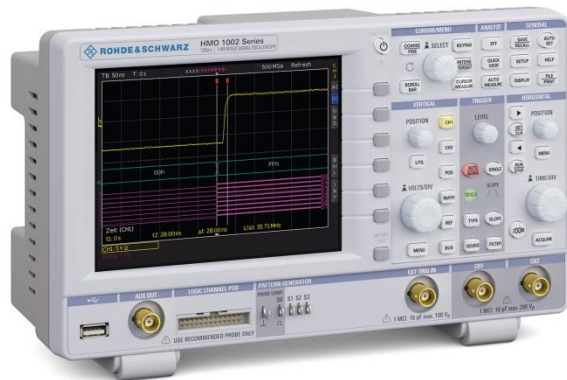
Agenda



- ← Introduction
- ← Applications, Target Customers, Value proposition
- ← **Product Description, key specs**
- ← Competition
- ← Supporting Material
- ← Ordering Information, suggested options and Prices



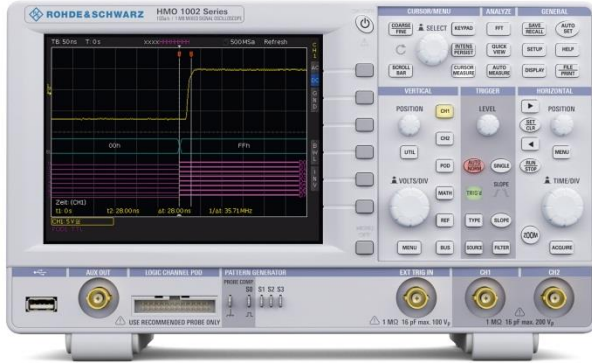
The HMO1002 6+1 at a glance



R&S®HMO1002 6+1 Main Specifications (build in)

Bandwidth	50 MHz, 100 MHz
Analog Channels	2 Channels
Sample Rate	1 GSa/s (maximum)
Memory Depth	1 MPts (maximum)
Sensitivity	1mV/Div to 10V/Div
1+1 MSO	8 digital channels
2+1 Pattern Generator	4Bit, 50MBit/s (SPI, I ² C, UART, CAN/LIN, counter, prog.)
3+1 Digital Voltmeter	ACrms, DC, DCrms, PeakPeak
4+1 Spectrum Analyzer	High dynamic range, 128kPt storage
5+1 Function Generator	DC, Sine, Square, Pulse, Triangle
6+1 Component Tester	Test Frequencies: 50Hz, 200Hz

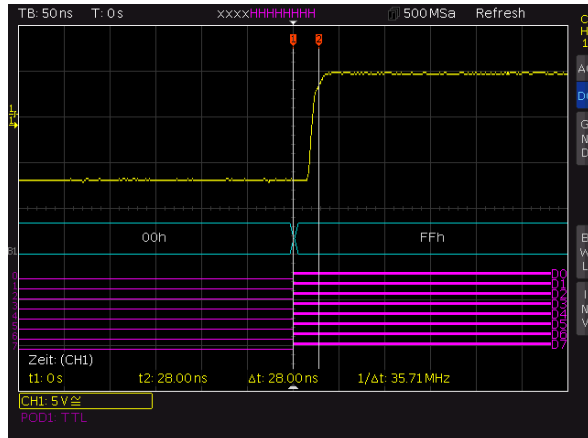
The HMO1002 6+1 at a glance



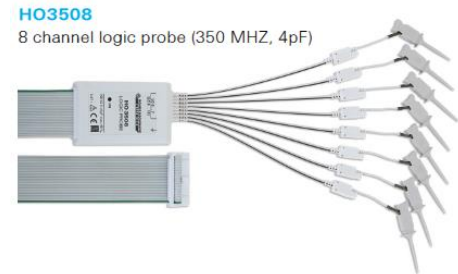
R&S® HMO1002 6+1 Main Specifications

1+1: MSO (with option HO3508)	8 digital channels
--------------------------------------	--------------------

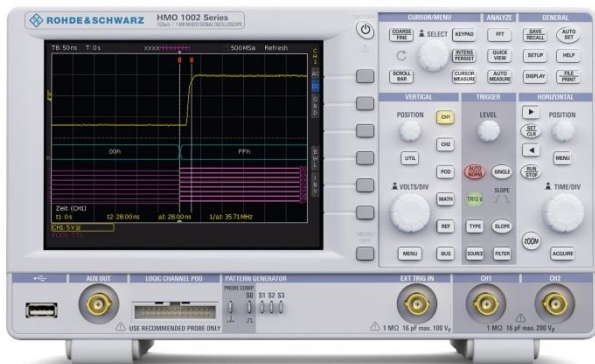
- ← Built – In Logic Analysis with the HO3508 Probes (or RT-ZL03 Logic Probes)
- ← 8 digital Channels
- ← Compatible with existing HO3508 Probes
- ← 0.5Mpts Memory Depth per Channel



Note: For full operation optional Logic probe **HO3508** is needed.



The HMO1002 6+1 at a glance

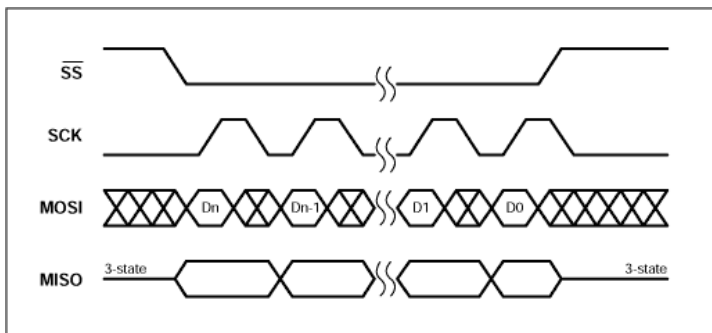


R&S® HMO1002 6+1 Main Specifications

2+1: Pattern Generator

50MBit/s (SPI, I²C, UART, counter, Prog.)

- ← Generate Patterns with up to 50Mbit/s
- ← Sample size up to 2kBit/Channel
- ← Predefined patterns like SPI, I²C, UART, CAN/LIN available
- ← Custom specific patterns can be generated to stimulate circuits and embedded designs

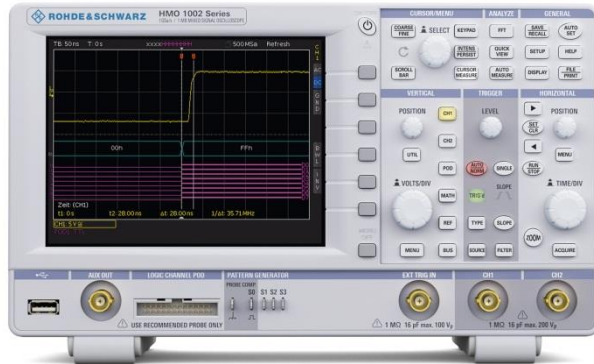


SPI:
 Serial Peripheral Interface
I²C:
 Inter-Integrated Circuit
UART:
 Universal Asynchronous
 Receiver/Transmitter

CAN:
 Controller Area Network
LIN:
 Local Interconnect
 Network



The HMO1002 6+1 at a glance

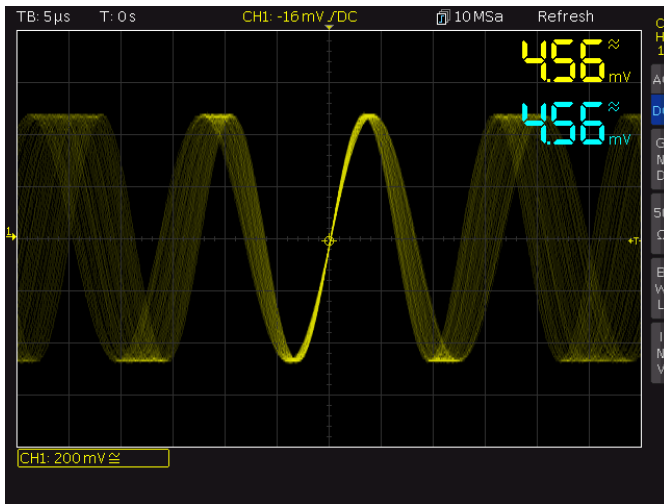


R&S® HMO1002 6+1 Main Specifications

3+1: Voltmeter

ACrms, DC, DCrms, PeakPeak

- ← Full automatic measurement
- ← Measure up to 2 Channels at the same time
- ← Display of the Crest factor
- ← Clear and simple 3 digit display
- ← Ideal for education, quick&simple measurements



Crest factor:
Crest factor is the peak amplitude of the waveform divided by the RMS value of the waveform

The HMO1002 6+1 at a glance



R&S® HMO1002 6+1 Main Specifications

4+1: Spectrum Analyzer

High dynamic range, 128kPt storage

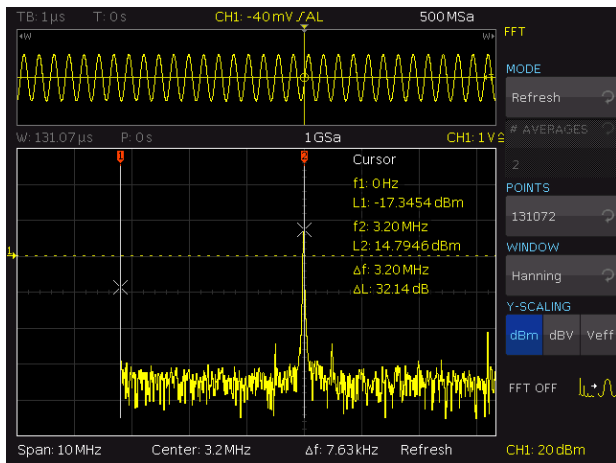
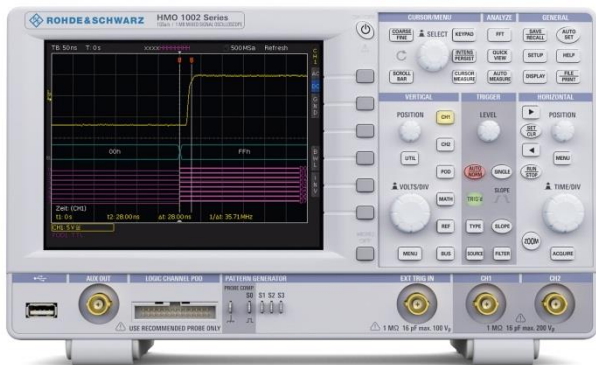
FFT based spectrum analysis: powerful & user-friendly

- ← Best FFT Analysis in its class.
Easy to use & flexible: first results with only 2 clicks
- ← Spectrum analyzer look-and-feel
- ← High measurement speed and fast display
- ← High dynamic range, 128kPt storage
- ← Auto Set function in FFT mode for optimal settings

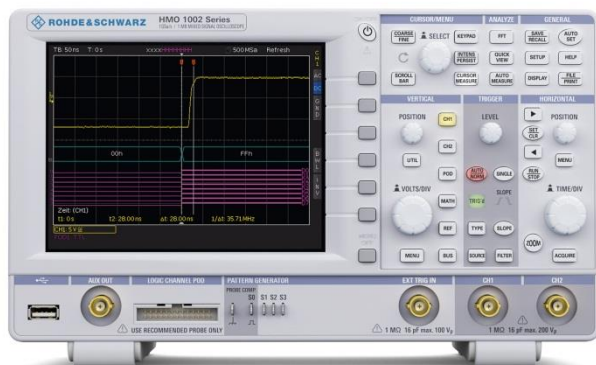
Application examples

- ← EMI Debugging
- ← VCO Testing
(correlated time and frequency analysis)
- ← Spectral measurements

FFT:
Fast Fourier Transform
VCO:
Voltage-Controlled Oscillator



The HMO1002 6+1 at a glance



R&S® HMO1002 6+1 Main Specifications

5+1: Function Generator DC, Sinus, Square, Pulse, Triangle

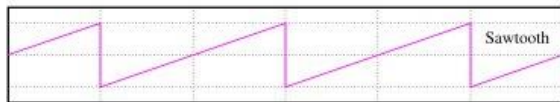
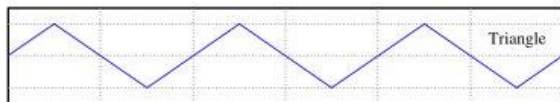
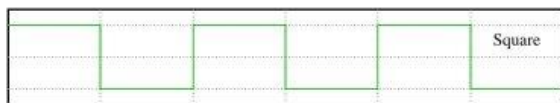
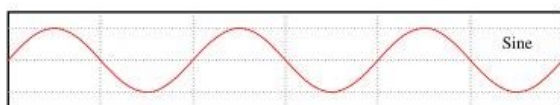
← Equipped with a Function Generator for DC, Sine- Square- Puls- and Triangle Wave up to 50kHz

← 50 Ohm Output

← 60mV...3Vpp @50 Ohm

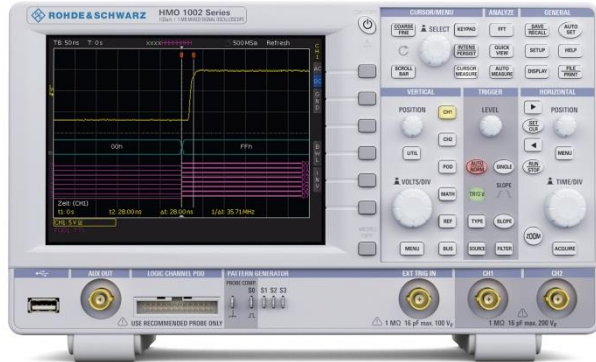
← DC-Offset +/-3V

← Ideal for educational environment to generate Standard Waveforms





The HMO1002 6+1 at a glance



R&S® HMO1002 6+1 Main Specifications

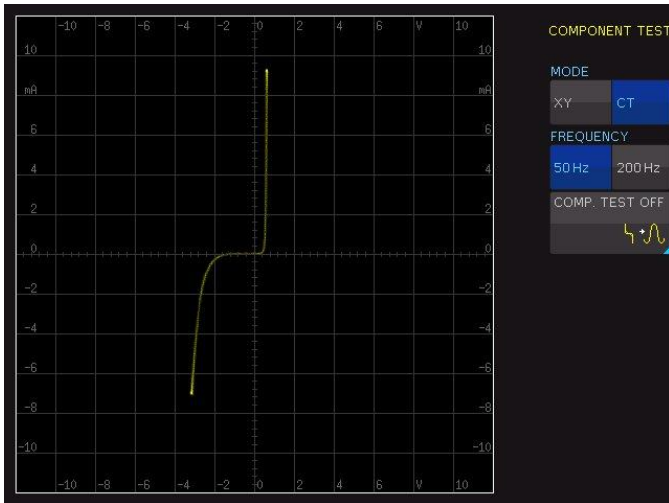
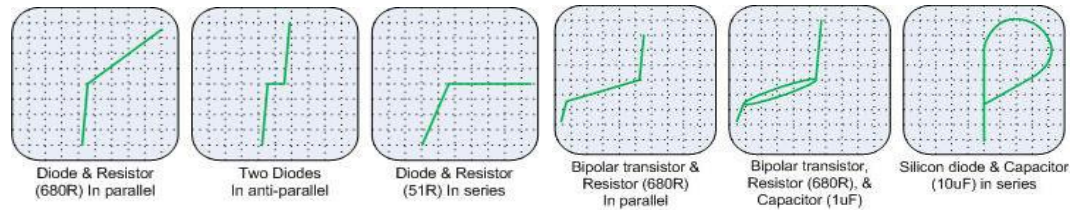
6+1: Component Tester	Test Frequencies: 50Hz, 200Hz
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← 2 Pole test of passive components (R, L, C) and semiconductors (diodes)

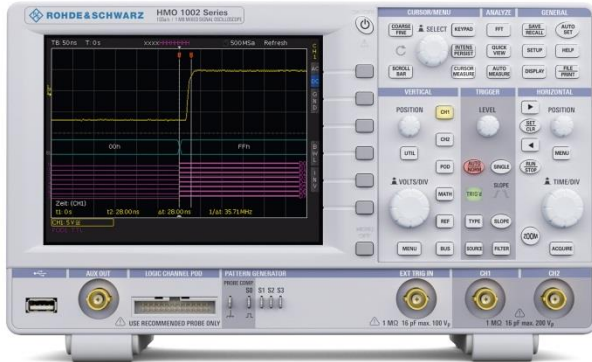
← Display of U / I curves

← Ideal to find defective components and for education purposes

← Examples:



The HMO1002 6+1 at a glance



R&S® HMO1002 Build In Educational Mode

Ideal for education:

← Enable or disable comfort features such as:

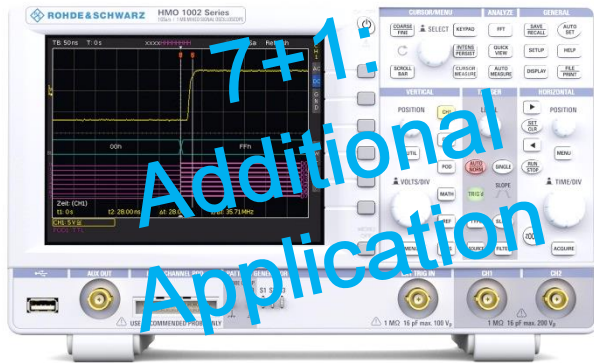
AUTO SET
QUICK VIEW
AUTO MEASURE



← Screen Identifier for *manual measurement mode*



The HMO1002 6+1 at a glance

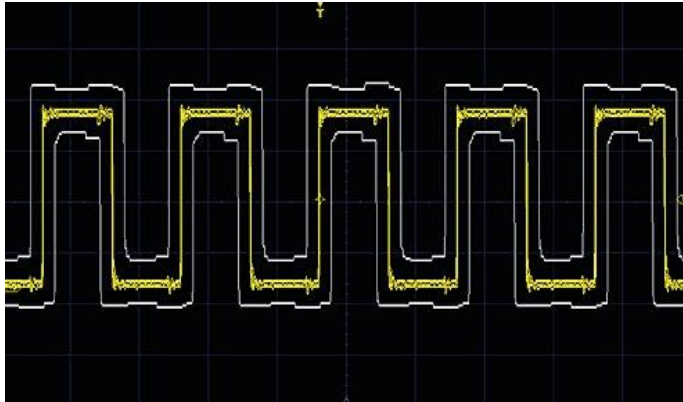


R&S® HMO1002 6+1 Main Specifications

7+1: Production Tester

Pass / Fail - Mask testing

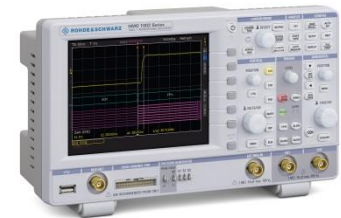
- ← Based on mask discrimination
- ← Signal to be within defined boundaries
- ← Events definable for fail: acoustic, pulse out, print
- ← Ideal for production testing, quality checks lab environment



Agenda



- ← Introduction
- ← Applications, Target Customers, Value proposition
- ← Product Description, key specs
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- ← Supporting Material
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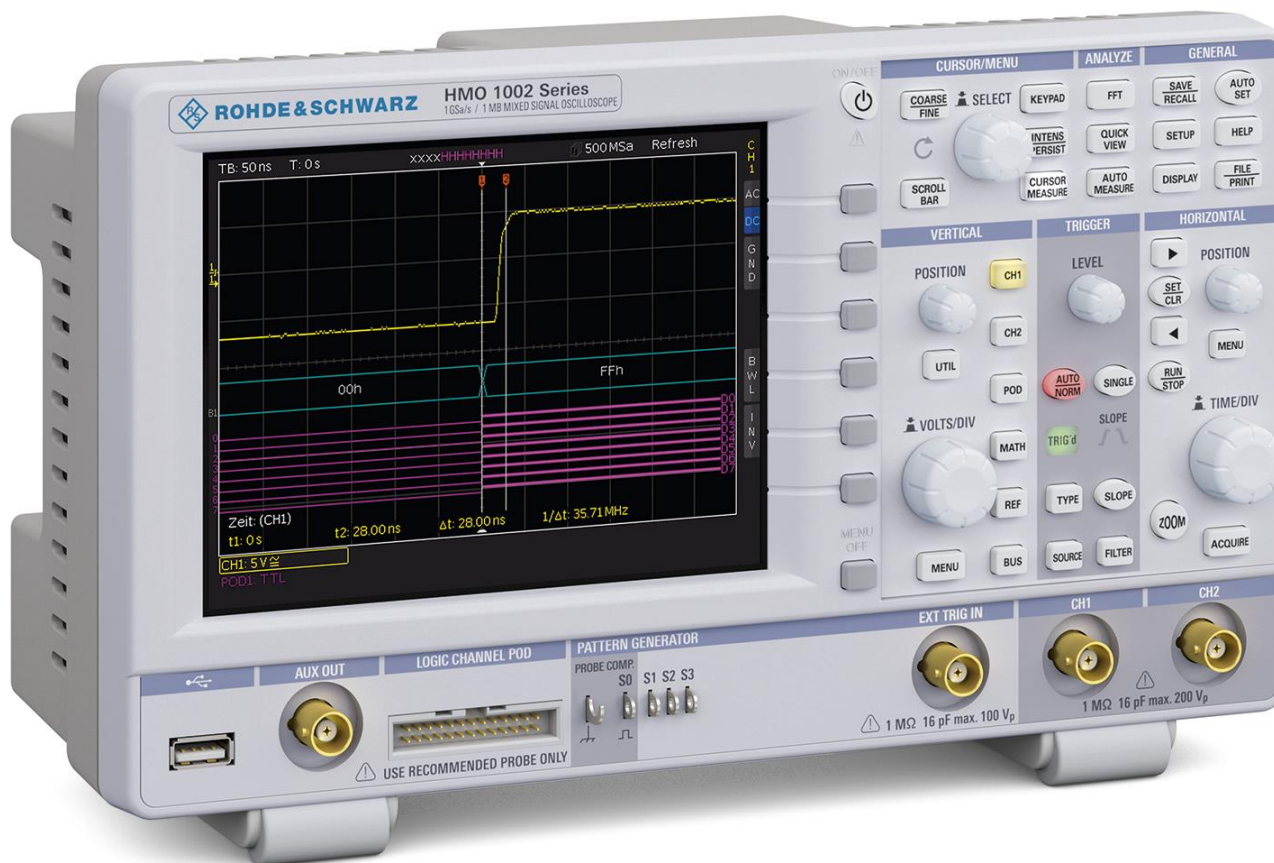




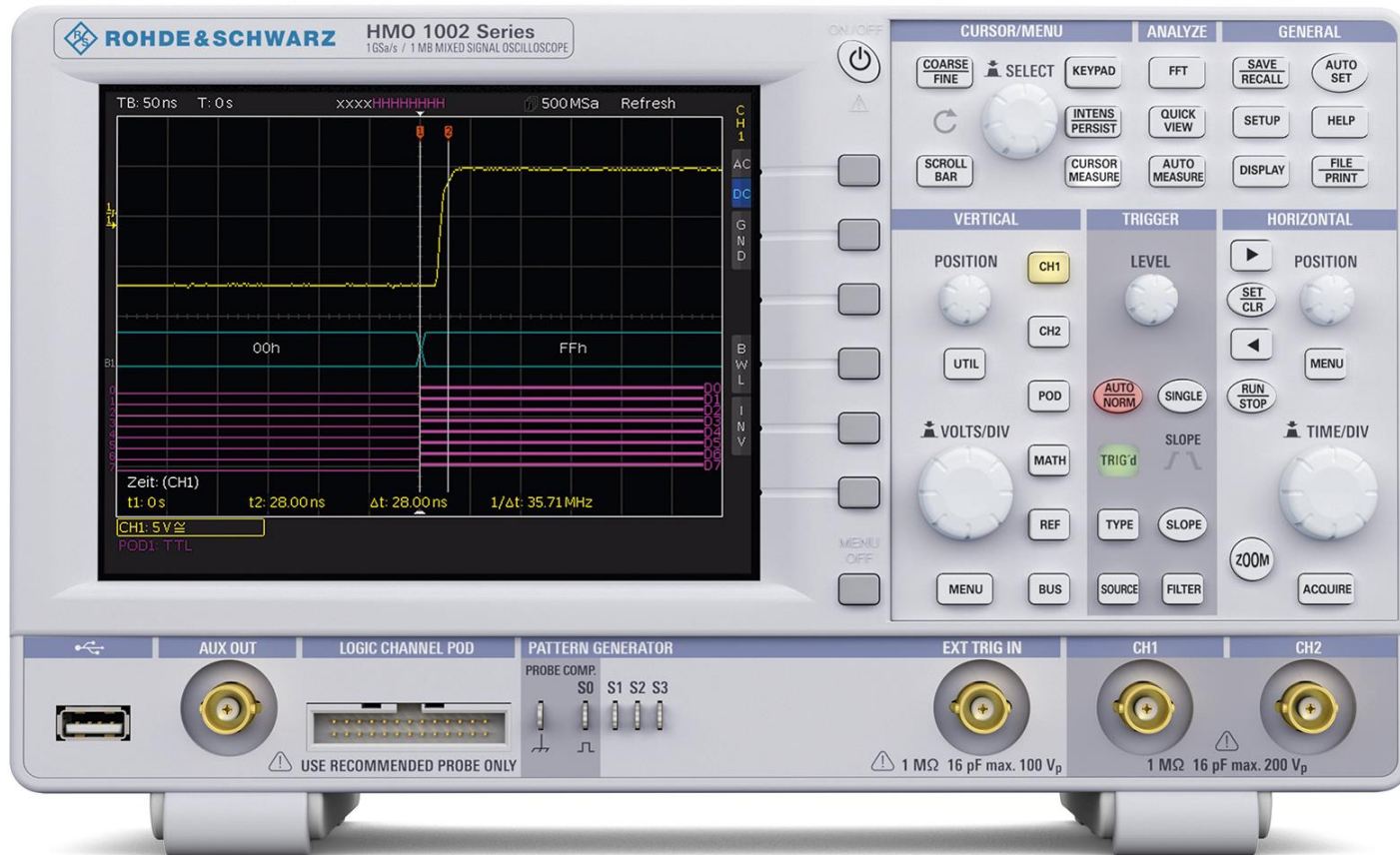
Competitive Landscape

	R&S R&S®HMO1002	Agilent DSOX2012	Tektronix TBS1102B	LeCroy WA 1012	Rigol DS2102-A
Bandwidth	100MHz	100MHz	100MHz	100MHz	100MHz
Channels	2	2	2	2	2
Max. Sample Rate GSa/s	1	2	2	1	2
Memory Depth per Channel Mpts	0,5	0,1	0,0025	1	3,5
Trigger Modes	Edge, Pulse Width, Pattern, Video, HDTV	Edge, pulse width, pattern, video	Edge, Pulse Width, Video	Edge, Pulse Width, Video, Slope (Rise Time), Alternate	Edge, Pulse Width, Rise/Fall time, Video, Pattern, Setup/Hold, RS232/UART, I2C, SPI
Ethernet Remote Interface	Standard	Option	N/A	N/A	Standard
Display Size	6,5	8,5	7	7	8
Generator	1Ch Function, programmable Pattern Generator (parallel/serial)	Opt. 1 Ch Function	N/A	N/A	Opt. 2 Ch Function
H/W Counter	5	N/A	6	N/A	6
Component Test	Standard	N/A	N/A	N/A	N/A
Base Price / Warranty	996 € / 3y	1.263 € / 3y	890 € / 3y	850 € / 3y	966 € / 3y
Price in € with MSO Probe	1294 €	1850 €	N/A	N/A	N/A

The HMO1002 6+1 - Views



The HMO1002 6+1 - Views



The new HMO 1002: 6 plus 1 Simply more Value.



• Questions ?