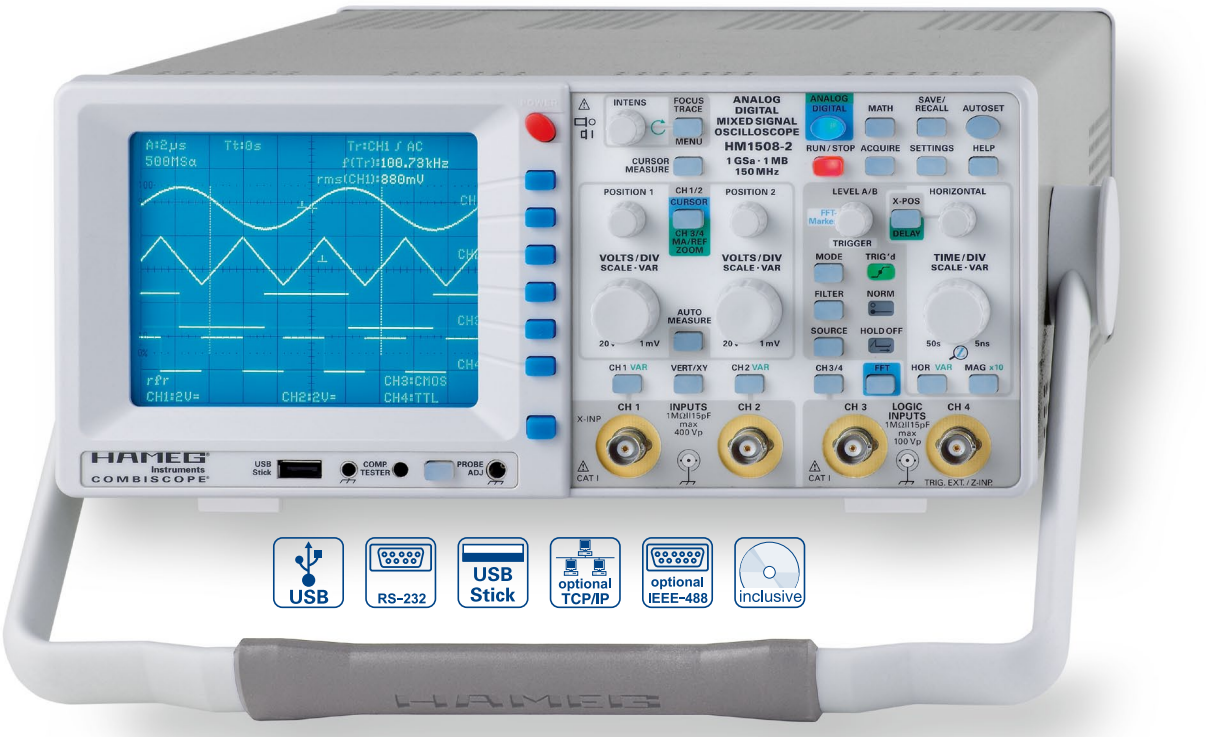
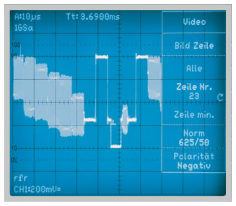
HAMEG Instruments
A Rohde&Schwarz Company

100MHz CombiScope®
HM1008-2

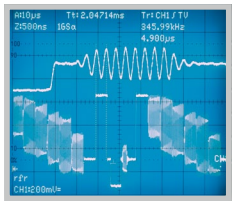
HM1508-2



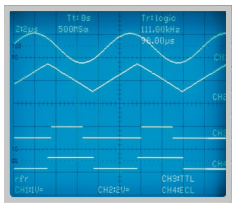
Either PAL or NTSC:
Line Triggering
with Line Counter



DSO Mode: Signal Portion
expanded with Zoom
(Burst in one Line)



DSO Mode:
4-Channel Display of 2
Analog and 2 Logic Signals



- ☑ **1GSa/s Real Time Sampling, 10GSa/s Random Sampling**
- ☑ **1MPts Memory per Channel, Memory Zoom up to 40,000:1**
- ☑ FFT for Spectral Analysis
- ☑ 2 Channels
- ☑ Deflection Coefficients 1mV/div....20V/div.,
  Time Base 5ns/div....50s/div.
- ☑ 8-Bit Low Noise Flash A/D Converters
- ☑ Acquisition Modes: Single, Refresh, Average, Envelope,
  Roll, Peak-Detect
- ☑ Front USB-Stick Connector for Screenshots
- ☑ USB/RS-232, optional: IEEE-488 (GPIB) or Ethernet/USB
- ☑ Signal Display: Yt, XY and FFT;
  Interpolation: Sinx/x, Pulse, Dot Join (linear)
- ☑ See HM1500-2 for Analog Mode, though 100MHz

100 MHz CombiScope® HM1008-2

All data valid at 23 °C after 30 minutes warm-up.

Vertical Deflection

Channels:	
Analog:	2
Digital:	2
Operating Modes:	
Analog:	CH 1 or CH 2 separate, DUAL (CH 1 and CH 2 alternate or chopped), Addition
Digital:	CH 1 or CH 2 separate, DUAL (CH 1 and CH 2), Addition
X in XY-Mode:	CH 1
Invert:	CH 1, CH 2
Bandwidth (-3 dB):	2 x 0...100 MHz
Rise time:	<3.5 ns
Bandwith limiting (selectable):	approx. 20 MHz (5 mV/div....20 V/div.)
Deflection Coefficients (CH1, 2):	14 calibrated steps
1...2 mV/div. (10 MHz)	±5 % (0...10 MHz (-3 dB))
5 mV...20 V/div.	±3 % (1–2–5 sequence)
variable (uncalibrated):	>2.5:1 to >50 V/div.
Inputs CH 1, 2:	
Input Impedance:	1 MΩ II 15 pF
Coupling:	DC, AC, GND (ground)
Max. Input Voltage:	400 V (DC + peak AC)
Y Delay Line (analog):	70 ns
Measuring Circuits:	Measuring Category I
Analog mode only:	
Auxiliary input:	
Function (selectable):	Extern Trigger, Z (unblank)
Coupling:	AC, DC
Max. input voltage:	100 V (DC +peak AC)

Triggering

Analog and Digital Mode	
Automatic (Peak to Peak):	
Min. signal height:	5 mm
Frequency range:	10 Hz...200 MHz
Level control range:	from Peak- to Peak+
Normal (without peak):	
Min. signal height:	5 mm
Frequency range:	0...200 MHz
Level control range:	-10...+10 div.
Operating modes:	Slope/Video
Slope:	Rising, falling, both
Sources:	CH 1, CH 2, alt. CH 1/2 (≥8 mm, analog mode only), Line, Ext.
Coupling:	**AC:** 10 Hz...200 MHz **DC:** 0...200 MHz **HF:** 30 kHz...200 MHz **LF:** 0...5 kHz Noise Rej. switchable
Video:	pos./neg. Sync. Impulse
Standards:	525 Line/60 Hz Systems 625 Line/50 Hz Systems
Field:	even/odd/both
Line:	all/line number selectable
Source:	CH 1, CH 2, Ext.
Indicator for trigger action:	LED
External Trigger via:	AUX (0.3 V_{pp}, 150 MHz)
Coupling:	AC, DC
Max. input voltage:	100 V (DC +peak AC)
Digital mode	
Pre/Post Trigger:	-100...+400 % related to complete memory
Analog mode	
2nd Trigger	
Min. signal height:	5 mm
Frequency range:	0...200 MHz
Coupling:	DC
Level control range:	-10...+10 div.

Horizontal Deflection

Analog mode	
Operating modes:	A, ALT (alternating A/B), B
Time base A:	50 ns/div....0.5 s/div. (1–2–5 sequence)
Time base B:	50 ns/div....20 ms/div. (1–2–5 sequence)
Accuracy A and B:	±3 %
X Magnification x10:	to 5 ns/div.
Accuracy:	±5 %
Variable time base A/B:	1:2.5
Hold Off time:	var. 1:10 (LED-Indication)
Bandwidth X-Amplifier:	0...3 MHz (-3 dB)
X Y phase shift <3°:	<220 kHz
Digital mode	
Time base range (1–2–5 sequence)	
Refresh Mode:	5 ns/div....20 ms/div.
with Peak Detect:	2...20 ms/div. (min. Pulse Width 10 ns)
Roll Mode:	50 ms/div....50 s/div.
Accuracy time base	
Time base:	50 ppm
Display:	±1 %
Memory Zoom:	max. 40,000:1
Bandwidth X-Amplifier:	0...100 MHz (-3 dB)
XY phase shift <3°:	<100 MHz

Digital Storage

Sampling rate (real time):	max. 2 x 500 MSa/s or 1 GSa/s interleaved
Sampling rate (random sampling):	10 GSa/s
Bandwidth:	2 x 0...100 MHz (random)
Memory:	1 MPts-Samples per channel
Operating modes:	Refresh, Average, Envelope/Roll (Free Run/Triggered), Peak-Detect
Resolution (vertical):	8 Bit (25 Pts/div.)
Resolution (horizontal):	
Yt:	11 Bit (200 Pts/div.)
XY:	8 Bit (25 Pts /div.)
Interpolation:	Sinx/x, Dot Join (linear)
Delay:	1 Million x 1/Sampling Rate to 4 Million x 1/Sampling Rate
Display refresh rate:	max.170/s at 1 MPts
Display:	Dots (acquired points only), Vectors (partly interpolated), optimal (complete memory weighting and vectors)
Reference Memories:	9 with 2 kPts each (for recorded signals)
Display:	2 signals of 9 (free selectable)

FFT Mode

Display X:	Frequency Range
Disaplay Y:	True rms value of spectrum
Scaling:	Linear or logarithmic
Level display:	dBV, V
Window:	Square, Hanning, Hamming, Blackman
Control:	Center frequency, Span
Marker:	Frequency, Amplitude
Zoom (frequency axis):	up to x20

Operation/Measuring/Interfaces

Operation:	Menu (multilingual), Autoset, help functions (multilingual)
Save/Recall (instrument parameter settings):	9
Signal display:	max. 4 traces
analog:	CH 1, 2 (Time Base A) in combination with CH 1, 2 (Time Base B)
digital:	CH 1, 2 and ZOOM or Reference or Mathematics)
USB Memory-Stick:	
Save/Recall external:	
Instrument settings and Signals:	CH 1, 2, ZOOM, Reference and Mathematics
Screen-shot:	as Bitmap
Signal display data (2k per channel):	Binary (orig. ADC-Data), Text (ASCII-Format), CSV (Spread Sheet)
Frequency counter:	
6 digit resolution:	1...200 MHz
5 digit resolution:	0.5 Hz...1 MHz
Accuracy:	50 ppm
Auto Measurements:	
Analog mode:	Frequency, Period, V_{dc}, V_{pp}, V_{p+}, V_{p-}
also in digital mode:	V_{rms}, V_{avg}
Cursor Measurements:	
Analog mode:	Δt, 1/Δt (f), tr, ΔV, V to GND, ratio X, ratio Y
plus in digital mode:	V_{pp}, V_{p+}, V_{p-}, V_{avg}, V_{rms}, pulse count
Resolution Readout/Cursor:	1000 x 2000 Pts, Signals: 250 x 2000
Interfaces (plug-in):	USB/RS-232 (HO720)
Optional:	IEEE-488, Ethernet/USB

Mathematic functions

Number of Formula Sets:	5 with 5 formulas each
Sources:	CH 1, CH 2, Math 1 – Math 5
Targets:	5 math. memories, Math 1...5
Functions:	ADD, SUB, 1/X, ABS, MUL, DIV, SQ, POS, NEG, INV
Display:	max. 2 math. memories (Math 1...5)

Display	
CRT:	D14-375GH
Display area (with graticule):	8 div. x 10 div.
Acceleration voltage:	approx. 14 kV

General Information	
Component tester	
Test voltage:	approx. 7 V_{rms} (open circuit), approx. 50 Hz
Test current:	max. 7 mA_{rms} (short circuit)
Reference Potential:	Ground (safety earth)
Probe ADJ Output:	1 kHz/1 MHz square wave signal 0.2 V_{pp} (tr <4 ns)
Trace rotation:	electronic
Line voltage:	105...253 V, 50/60 Hz ±10 %, CAT II
Power consumption:	47 Watt at 230 V, 50 Hz
Protective system:	Safety class I (EN61010-1)
Operating temperature:	+5...+40 °C
Storage temperature:	-20...+70 °C
Rel. humidity:	5...80 % (non condensing)
Dimensions (W x H x D)**:**	285 x 125 x 380 mm
Weight:	5.6 kg

Accessories supplied: Line cord, Operating manual, 2 Probes 10:1 with attenuation ID (HZ200), Windows Software for control and data transfer

Recommended accessories:

HO730	Dual-Interface Ethernet/USB
HO740	Interface IEEE-488 (GPIB)
HZ13	Interface cable (USB) 1.8 m
HZ14	Interface cable (serial) 1:1
HZ20	Adapter, BNC to 4 mm banana
HZ33	Test cable 50 Ω, BNC/BNC, 0.5 m
HZ34	Test cable 50 Ω, BNC/BNC, 1 m
HZ45	19¨-Rackmount Kit 4RU
HZ51	Probe 10:1 (150 MHz)
HZ52	Probe 10:1 RF (250 MHz)
HZ53	Probe 100:1 (100 MHz)
HZ72	GPIB-Cable 2 m
HZ100	Differential probe 20:1/200:1
HZ109	Differential probe 1:1/10:1
HZ115	Differential probe 100:1/1000:1
HZ200	Probe 10:1 with auto attenuation ID (250 MHz)
HZ350	Probe 10:1 with automatically identification (350 MHz)
HZ355	Slimline probe 10:1 with automatically identification (500 MHz)
HZO20	High voltage probe 1000:1 (400 MHz,1000 V_{rms})
HZO30	Active probe 1 GHz (0.9 pF, 1 MΩ, including many accessories)
HZO50	AC/DC Current probe 20 A, DC...100 kHz
HZO51	AC/DC Current probe 1000 A, DC...20 kHz

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