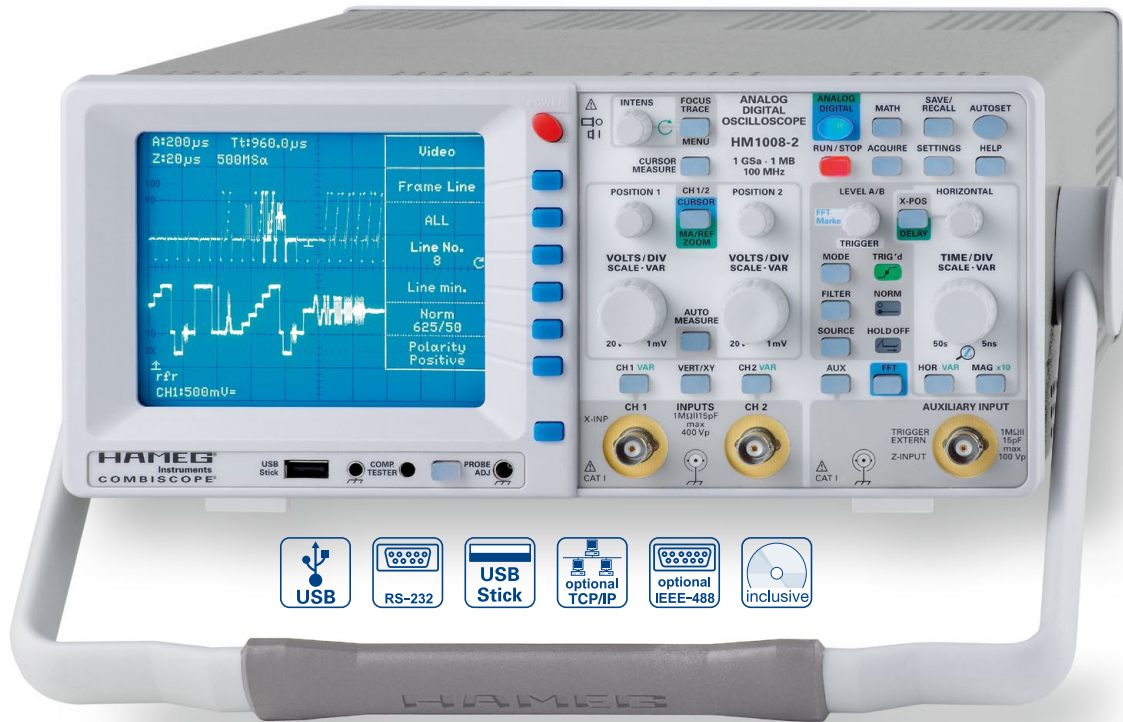
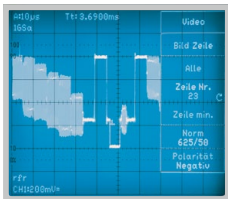


# 100MHz CombiScope® HM1008-2

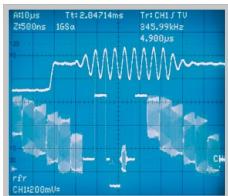
HM1008-2



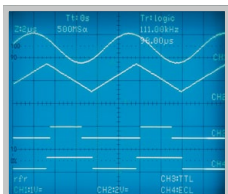
Either PAL or NTSC:  
Line Triggering  
with Line Counter



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

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

## Triggering

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

## Horizontal Deflection

<b>Analog mode</b>	
<b>Operating modes:</b>	A, ALT (alternating A/B), B
<b>Time base A:</b>	50 ns/div...0.5 s/div. (1-2-5 sequence)
<b>Time base B:</b>	50 ns/div...20 ms/div. (1-2-5 sequence)
<b>Accuracy A and B:</b>	±3%
<b>X Magnification x10:</b>	to 5 ns/div.
<b>Accuracy:</b>	±5%
<b>Variable time base A/B:</b>	1:2.5
<b>Hold Off time:</b>	var. 1:10 (LED-Indication)

<b>Bandwidth X-Amplifier:</b>	0...3 MHz [-3 dB]
<b>X Y phase shift &lt;3°:</b>	<220 kHz
<b>Digital mode</b>	
<b>Time base range (1-2-5 sequence)</b>	
<b>Refresh Mode:</b>	5 ns/div...20 ms/div.
<b>with Peak Detect:</b>	2...20 ms/div. (min. Pulse Width 10 ns)
<b>Roll Mode:</b>	50 ms/div...50 s/div.
<b>Accuracy time base</b>	
<b>Time base:</b>	50 ppm
<b>Display:</b>	±1%
<b>Memory Zoom:</b>	max. 40,000:1
<b>Bandwidth X-Amplifier:</b>	0...100 MHz [-3 dB]
<b>XY phase shift &lt;3°:</b>	<100 MHz

## Digital Storage

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

## FFT Mode

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

## Operation/Measuring/Interfaces

<b>Operation:</b>	Menu (multilingual), Autoset, help functions (multilingual)
<b>Save/Recall (instrument parameter settings):</b> 9	
<b>Signal display:</b>	max. 4 traces
<b>analog:</b>	CH 1, 2 (Time Base A) in combination with CH 1, 2 (Time Base B)
<b>digital:</b>	CH 1, 2 and ZOOM or Reference or Mathematics)
<b>USB Memory-Stick:</b>	
<b>Save/Recall external:</b>	
<b>Instrument settings and Signals:</b>	CH 1, 2, ZOOM, Reference and Mathematics
<b>Screen-shot:</b>	as Bitmap
<b>Signal display data (2k per channel):</b>	Binary (orig. ADC-Data), Text (ASCII-Format), CSV (Spread Sheet)
<b>Frequency counter:</b>	
<b>6 digit resolution:</b>	1...200 MHz
<b>5 digit resolution:</b>	0.5 Hz...1 MHz
<b>Accuracy:</b>	50 ppm
<b>Auto Measurements:</b>	
<b>Analog mode:</b>	Frequency, Period, V <sub>dc</sub> , V <sub>pp</sub> , V <sub>p+</sub> , V <sub>p-</sub>
<b>also in digital mode:</b>	V <sub>rms</sub> , V <sub>avg</sub>
<b>Cursor Measurements:</b>	
<b>Analog mode:</b>	Δt, 1/Δt (f), tr, ΔV, V to GND, ratio X, ratio Y
<b>plus in digital mode:</b>	V <sub>pp</sub> , V <sub>p+</sub> , V <sub>p-</sub> , V <sub>avg</sub> , V <sub>rms</sub> , pulse count
<b>Resolution Readout/Cursor:</b>	1000 x 2000 Pts, Signals: 250 x 2000
<b>Interfaces (plug-in):</b> USB/RS-232 (H0720)	
<b>Optional:</b>	IEEE-488, Ethernet/USB

## Mathematic functions

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

<b>Component tester</b>	
Test voltage:	approx. 7V <sub>rms</sub> (open circuit), approx. 50 Hz
Test current:	max. 7 mA <sub>rms</sub> (short circuit)
Reference Potential:	Ground (safety earth)
Probe ADJ Output:	1 kHz/1 MHz square wave signal 0.2V <sub>pp</sub> (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:

H0730	Dual-Interface Ethernet/USB
H0740	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)
HZ020	High voltage probe 1000:1 (400 MHz, 1000 V <sub>rms</sub> )
HZ030	Active probe 1 GHz (0.9 pF, 1 MΩ, including many accessories)
HZ050	AC/DC Current probe 20 A, DC...100 kHz
HZ051	AC/DC Current probe 1000 A, DC...20 kHz