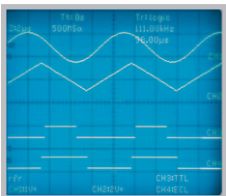


150 MHz Mixed Signal  
CombiScope® with FFT  
HM1508-2

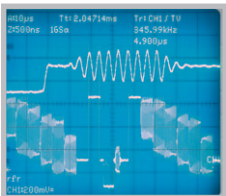
**NEW**



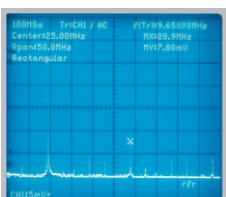
DSO mode:  
4-channel display of 2  
analog and 2 logic signals



DSO mode: Signal portion  
expanded with zoom (color  
burst in one line of a  
composite video signal)



Frequency Analysis  
with FFT



1 GSa/s Real Time Sampling, 10 GSa/s Random Sampling

1 Mpts Memory per Channel, Memory **Z**oom up to 50,000:1

FFT for spectral analysis

4 Channels (2 analog, 2 logic inputs)

Deflection coefficients: 1 mV/cm – 20 V/cm,  
Time Base: 50 s/cm – 5 ns/cm

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 Interface

optional: IEEE-488, Ethernet/USB Interface

Signal display: Yt, XY and FFT;  
Interpolation: Sinx/x, Pulse, Dot Join (linear)

Analog mode: see HM1500-2



# 150 MHz Mixed Signal CombiScope® HM1508-2

Valid at 23 °C after a 30 minute warm-up period

## Vertical Deflection

<b>Channels:</b>	
Analog:	2
Digital:	2 + 2 Logic Channels
<b>Operating Modes:</b>	
Analog:	CH 1 or CH 2 separate, DUAL (CH 1 and CH 2 alternate or chopped), Addition
Digital:	Analog Signal Channels CH 1 or CH 2 separate, DUAL (CH 1 and CH 2), Addition Logic Signal Channels: CH 3 and CH 4
X in XY-Mode:	CH 1
Invert:	CH 1, CH 2
Bandwidth (-3 dB):	2 x 0 - 150 MHz
Rise time:	< 2.3 ns
Overshoot:	max. 1%
Bandwidth limiting (selectable):	about 20 MHz (5 mV/cm - 20 V/cm)
<b>Deflection Coefficients(CH 1,2):</b> 14 calibrated steps	
1 mV - 2 mV/cm (10 MHz)	± 5% (0 - 10 MHz (-3 dB))
5 mV - 20 V/cm	± 3% (1-2-5 sequence)
variable (uncalibrated):	> 2.5:1 to > 50V/cm
<b>Inputs CH 1, 2:</b>	
Input Impedance:	1 MΩ    15 pF
Coupling:	DC, AC, GND (ground)
Max. Input Voltage:	400V [DC + peak AC]
Y Delay Line (analog):	70 ns
Measuring Circuits:	Measuring Category I
<b>Digital mode only:</b>	
Logic Channels:	CH 3, CH 4
Select. switching thresholds:	TTL, CMOS, ECL
User definable thresholds:	3
within the range:	-2 V to +3 V
<b>Analog mode only:</b>	
Auxiliary input:	CH 4: 100V [DC + peak AC]
Function (selectable):	Extern Trigger, Z (unblank)
Coupling:	AC, DC
Max. input voltage:	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 - 250 MHz
Level control range:	from Peak- to Peak+
<b>Normal (without peak):</b>	
Min. signal height:	5 mm
Frequency range:	0 - 250 MHz
Level control range:	-10 cm to +10 cm
<b>Operating modes:</b> Slope/Video/Logic	
Slope:	positive, negative, both
Sources:	CH 1, CH 2, alt. CH 1/2 (≥ 8 mm, analog mode only), Line, Ext.
<b>Coupling:</b>	
AC:	10 Hz-250 MHz
DC:	0-250 MHz
HF:	30 kHz-250 MHz
LF:	0-5 kHz
Noise Rej. switchable	
<b>Video:</b> 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:	CH 4 (0.3V <sub>pp</sub> , 150 MHz)
Coupling:	AC, DC
Max. input voltage:	100V [DC +peak AC]
<b>Digital mode:</b>	
Logic:	AND/OR, TRUE/FALSE
Source:	CH1 or 2, CH3 and CH4
State:	X, H, L
Pre/Post Trigger:	-100% to +400% related to complete memory

<b>Analog mode</b>	
<b>2nd Trigger</b>	
Min. signal height:	5 mm
Frequency range:	0 - 250 MHz
Coupling:	DC
Level control range:	-10 cm to +10 cm

## Horizontal Deflection

<b>Analog mode</b>	
Operating modes:	A, ALT (alternating A/B), B
Time base A:	0.5 s/cm - 50 ns/cm (1-2-5 sequence)
Time base B:	20 ms/cm - 50 ns/cm (1-2-5 sequence)
Accuracy A and B:	± 3%
X Magnification x10:	to 5 ns/cm
Accuracy:	± 5%
Variable time base A/B:	cont. 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
<b>Digital mode</b>	
<b>Time base range (1-2-5 sequence)</b>	
Refresh Mode:	20 ms/cm - 5 ns/cm
with Peak Detect:	20 ms/cm - 2 ms/cm (min. Pulse Width 10 ns)
Roll Mode:	50 s/cm - 50 ms/cm
<b>Accuracy time base</b>	
Time base:	50 ppm
Display:	± 1%
MEMORY ZOOM:	max. 50,000:1
Bandwidth X-Amplifier:	0 - 150 MHz (-3 dB)
XY phase shift < 3°:	< 100 MHz

## Digital Storage

Sampling rate (real time):	Analog channels: 2 x 500 MSa/s, 1 GSa/s interleaved; Logic Channels: 2 x 500 MSa/s
Acquisition (random sampling):	10 GSa/s
Bandwidth:	2 x 0 - 150 MHz (random)
Memory:	1 M-Samples per channel
Operating modes:	Refresh, Average, Envelope/ Roll: Free Run/Triggered, Peak-Detect
Resolution (vertical):	8 Bit (25 Pts/cm)
Resolution (horizontal):	
Yt:	11 Bit (200 Pts/cm)
XY:	8 Bit (25 Pts/cm)
Interpolation:	Sinx/x, Dot Join (linear), Pulse
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
Display Y:	True rms value of spectrum
Scaling:	Linear or logarithmic
Level display:	dBV, V
Window:	Square, Hanning, Hamming, Blackmann
Control:	Center frequency, Span
Marker:	Frequency, Amplitude
Zoom (frequency axis):	x10

## Operation/Measuring/Interfaces

Operation:	Menu (multilingual), Autiset, help functions (multilingual)
Save/Recall (instrument parameter settings):	9
Signal display:	max. 4 signals or 4 traces
analog:	CH 1, 2 (Time Base A) in combination with CH 1, 2 (Time Base B)
digital:	CH 1, 2 and CH 3, 4 or ZOOM or Reference or Mathematics
USB Memory-Stick:	
Save/Recall external:	
Instrument settings and Signals:	CH 1, 2 and CH 3, 4 or ZOOM or Reference or Mathematics

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Screen-shot:	as Bitmap
Signal display data (2k per channel):	Binary (SCPI-Data), Text (ASCII-Format), CSV (Spread Sheet)
<b>Frequency counter:</b>	
6 digit resolution:	> 1 MHz – 250 MHz
5 digit resolution:	0.5 Hz – 1 MHz
Accuracy:	50 ppm
<b>Auto Measurements:</b>	
Analog mode:	Frequency, Period, Vdc, Vpp, Vp+, Vp-
also in digital mode:	$V_{rms}$ , $V_{avg}$
<b>Cursor Measurements:</b>	
Analog mode:	$\Delta t$ , $1/\Delta t$ (f), $t_r$ , $\Delta V$ , 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 (H0720)
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 cm x 10 cm
Acceleration voltage:	approx. 14 kV

#### General Information

<b>Component tester</b>	
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 $0.2 V_{pp}$ ( $t_r < 4 ns$ )
Trace rotation:	electronic
Line voltage:	105 – 253 V, 50/60 Hz $\pm 10\%$ , CAT II
Power consumption:	47 Watt at 230 V, 50 Hz
Protective system:	Safety class I (EN61010-1)
Weight:	5.6 kg
Cabinet (W x H x D):	285 x 125 x 380 mm
Ambient temperature:	0° C ...+40° C

**Accessories supplied:** Line cord, Operating manual, 4 Probes 10:1 with attenuation ID (HZ200), Windows Software for control and data transfer

#### Optional accessories:

H0730 Dual-Interface Ethernet/USB,  
H0740 Interface IEEE-488 (GPIB),  
HZ70 Opto-Interface (with optical fiber cable)

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