



# 100 MHz CombiScope® HM1008

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

## 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
X in XY-Mode:	CH 1
Invert:	CH 1, CH 2
Bandwidth (-3 dB):	2 x 0 - 100 MHz
Rise time:	< 3.5 ns
Overshoot:	max. 1 %
<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 > 50 V/cm
<b>Inputs CH 1, 2:</b>	
Impedance:	1 MΩ    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
<b>Analog mode only:</b>	
<b>Auxiliary input:</b>	
Function (selectable):	Extern Trigger, Z (unblank)
Coupling:	AC, DC
Max. input voltage:	100 V (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>	
Slope/Video	
Min. signal height:	5 mm
Frequency range:	0 - 200 MHz
Level control range:	-10 cm to +10 cm
<b>Operating modes:</b>	
Slope/Video	
Slope:	positive, negative, both
Sources:	CH 1, CH 2, alt. CH 1/2 (≥ 8 mm), Line, Ext.
Coupling:	<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>	
Standards:	pos./neg. Sync. Impulse 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.
<b>Indicator for trigger action:</b> LED	
External Trigger via:	Auxiliary Input (0.3 V <sub>pp</sub> , 100 MHz)
Coupling:	AC, DC
Max. input voltage:	100 V (DC +peak AC)
<b>Digital mode</b>	
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 - 200 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>	
Time base range (1-2-5 sequence)	
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 - 100 MHz (-3 dB)
X Y phase shift < 3°:	< 100 MHz

## Digital Storage

Acquisition (real time):	2x 500 MSa/s, 1 GSa/s interleaved
Acquisition (random sampling):	10 GSa/s
Bandwidth:	2 x 0 - 100 MHz (random)
Memory:	1 M-Samples per channel
Operating modes:	Refresh, Average, Envelope/ Roll: Free Run/Triggered, Peak-Detect
<b>Resolution (vertical):</b>	
8 Bit (25 Pts/cm)	
<b>Resolution (horizontal):</b>	
Yt:	11 Bit (200 Pts/cm)
XY:	8 Bit (25 Pts/cm)
Interpolation:	Sinx/x, Dot Join (linear)
Delay:	1 Million * 1/Sampling Rate to 4 Million * 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)

## 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)
Frequency counter:	
6 digit resolution:	>1 MHz - 200 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 <sub>rms</sub> , V <sub>avg</sub>
<b>Cursor Measurements:</b>	
Analog mode:	Δt, 1/Δt (f), t <sub>r</sub> , ΔV, V to GND, ratio X, ratio Y
plus in digital mode:	V <sub>pp</sub> , V <sub>p+</sub> , V <sub>p-</sub> , V <sub>avg</sub> , V <sub>rms</sub> , pulse count
Resolution Readout/Cursor:	1000 x 2000 Pts, Signals: 250 x 2000
Interfaces (plug-in):	RS-232 (H0710)
Optional:	IEEE-488, Ethernet, Dual-Interface RS-232/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 <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 0.2 V <sub>pp</sub> (tr < 4 ns)
Trace rotation:	electronic
Line voltage:	105 - 253 V, 50/60 Hz ± 10 %, CAT II
Power consumption:	42 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, 2 Probes 10:1 with attenuation ID, Windows Software for control and data transfer  
**Optional accessories:** Dual-Interface RS-232/USB H0720, Ethernet H0730 IEEE-488 (GPIB) H0740, Opto-Interface (with optical fiber cable) HZ70